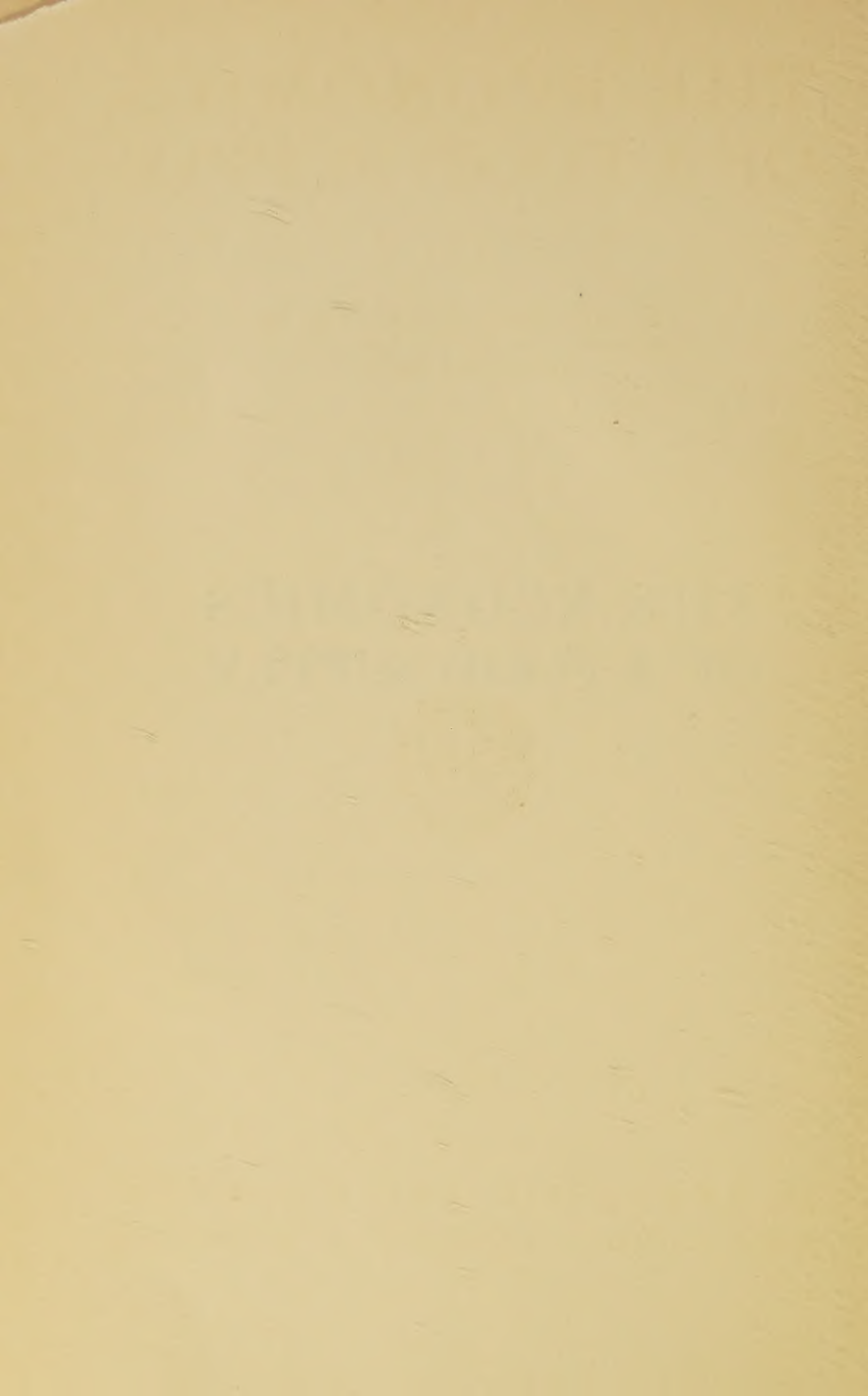


THE ECONOMICS
OF A FOOD SUPPLY



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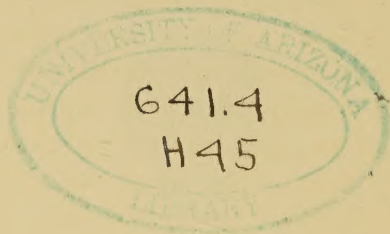
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D. APPLETON AND COMPANY
NEW YORK :: LONDON :: MCMXXIV

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PREFACE

The purpose of this account is to try to tell the whole story of the way in which food comes to the consumer. Some parts have, indeed, been told with more fullness than others, but all parts have been touched upon. The food supply is a theme which is not far aloof from every one's interest. In some parts of the world today, the lack of food has set the fate of large parts of certain nations, and the pity of more favored peoples has been drawn to this fact. Even these favored nations, however, have not been without their food problems. Few public questions in recent years have drawn out more widespread concern among the best of them—their scolding strength, at least—than has the vexed question of the high prices for foods. Food, indeed, if we accept the teachings of modern science, fixes the exact terms under which our humbler brethren of the plant and animal worlds may live.

The present treatise gives due weight to the physical and biological sources of our food supply, since these, in fact, are the final limits. Geographies, and especially physical and commercial geographies, have always done this, and nature's resources are now becoming well known. But the main effort of this work has been to show the devices and the methods by which these natural resources have been turned into food. Soils and climates, even of the best, are still a far cry from the consumer's table. The terms under which modern farming brings food into being are conclusive. The farmer is sometimes spoken

of as the tender of our food sluiceways and the present nation-wide distress among farmers stresses the need of attention to their claims.

The problem of food distribution or marketing, strikes many as being the real issue in a food supply. Localized output, but with universal use of food, must needs give its troubles of this sort. Truly, the newly risen classes of middlemen, the ministers of this service, have lacked nothing of public notice in recent years. Their place in our national household is far from settled, but the service which they perform may not be dispensed with. Their success or failure in performing this service must be weighed and determined. Ways and means of these sorts make up in the main the economics, as compared with the resources of a food supply, which justifies the title of this text.

Finally, the growing public concern about the food supply is shown by the numerous recent efforts of governments in behalf of this great interest. In many ways, this oldest and most widespread of human concerns has had the attention of governments in recent years to a degree not dreamed of before. Some collective solution of our food troubles is thought by many to furnish the real key to the whole food problem.

An official symbol of the relations upon which this work is based may be readily found. Our systems of agricultural bureaus and colleges show this opportunity clearly. Studies in food in each of these is carried on jointly with studies in farming and in marketing. The federal department of agriculture has, indeed, for many years housed one of the most notable staffs of food experts within the whole world, and no agricultural college fails in having a department of domestic science. The bureau

of markets is one of the best known divisions of the big farm department at the national capital, and marketing as a study and as an extension project is found in every college of agriculture. The natural fitness for these things to go together, therefore, is a further warrant for the logic on which this narrative is founded.

An especial suitability is found for emphasizing the economics of a food supply at the present time as compared with food resources. Our food resources remain much as they have been, but the food-producing farming class has undergone something resembling a complete breakdown within the past few years. The federal department of agriculture claims that within the two years ending December 31, 1922, "the enormous net movement of 1,120,000 persons from farms to towns and cities" has taken place. This is a movement of population on a scale that ranks with some of the historical migrations. The farm depression which began in June of 1920 is thought to have had no parallel in history in respect to extent and severity. Finally, the whole farming class is apparently awakening to a new class consciousness, as the famous farm bloc in Congress and the national Farm Bureau organization abundantly evidence, and the future production of food promises many variations from the present system.

Acknowledgments from the author are gratefully made to O. E. Baker, Economist in the Federal Department of Agriculture, for the farm interest maps which the book contains and to D. Appleton & Co. for the railroad map.

MICHIGAN AGRICULTURAL COLLEGE

W. O. H.

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THE ECONOMICS OF A FOOD SUPPLY

CHAPTER I

THE PURPOSES AND NATURE OF FOOD

THE wheatless and meatless days, when we were "winning the war with food," brought the first real awakening of the present generation to the danger that we may lack having enough to eat. Food as a subject of serious study has been dealt with in the main from the culinary point of view—the point of view of making it more appetizing, of making us eat more—but the case of a food deficit has been given, until lately, but slight notice.

Some—and these have been, despite their grim forebodings, the deathless heralds of the race—have not forborne to prophesy that "mankind must starve at last." Malthus was the first of these and Malthus' thesis has not failed of proof at any time in its main view, namely, that human beings multiply in a geometric ratio, thus tending to outstrip the food supply. The use of the Malthusian belief by Darwin to explain the struggle for life among plants and wild animals has done much to acquaint every one with the close dependence of organic life upon food. It is, therefore, no longer hard to teach the lesson that, with a high human birth rate, human population is only checked in its growth by the lack of subsistence, whether in the form of standards of living or otherwise. "Must mankind starve at last?" was given the answer "Yes," also,

as late as 1890 by that able member of the British Academy, Sir William Crooks, whose treatise under this title may well be looked upon as bringing Malthus up to date.

Food, indeed, has too often been thought of as a heritage or birthright, at least by Western peoples. As a result, true to the care which bounty always gets, we have given it little study and less worry. There is a proverb that water is never missed until the well runs dry. Now, therefore, that we have had the full winter of discontent from a food scarcity, we are much more ready to look into the matter of the scarcity or prevalence of this utility, than was ever before the case.

The main part that food plays in the living costs of the typical family is also a reason for the big place which the subject now has in the public mind. All the studies which have been made of family budgets agree in showing that between a third and a half of the outlay of the ordinary family is for food. The result is that the leading note of grief in a period of high costs of living springs from the lack of food. A recent study of family budgets in different cities brings out clearly the costs of food as compared with all other family expenses. The table is as follows:

FIGURE 1.—COMPARISON OF FOOD COSTS WITH OTHER LIVING EXPENSES

Locality	Average annual family expenditure for food	Total average annual expenditures for all purposes*
New York	\$678.73	\$1470.20
Providence	647.00	1448.28
Boston	628.92	1310.20
Chicago	613.10	1514.00
San Francisco	605.40	1414.15
Seattle	588.76	1587.30
Atlanta	526.00	1342.07

* Osburn, Wm. F., "A Study of Food Costs (1919) in Various Cities." *Monthly Labor Review*, Vol. IX, pp. 303-327.

The revolution in food-supply methods, which has taken place recently, has also brought food under the public eye. Both the farm and the nation's food have come under the spell of the trade or commerce motive, within the last half century, in a way which was before unknown. In the so-called self-subsisting style of living of a century ago—the era of the home-made things—food-growing was the main business of most families. Farming was found everywhere and the family which failed to grow the chief things that were used on the family table was apt to go hungry. City families, even, owned and tilled near-by farms or estates in order that their food supply might be assured. These were the days of the stage coach and of homespun clothing, and marked a period which in our own history comes down almost to the Civil War. But the growth of large cities, new devices in the way of tools and machines and motive forces, and an era of special trades have changed all this. No one is expected any longer to grow or to make his own comforts, necessities, and luxuries, and the bringing of everything which has to do with food into the realm of trade is the result.

Food-growing is now carried on by a class of special workers, while its distribution is in the hands of other expert groups. The chief consuming classes, therefore, are far away from and often ignorant of the sources from which their food comes. Mass-growing and mass-marketing has now become the rule. This self-separation of city people from the sources of their food supply stirs sharp distrust on their part toward those who serve them as food dealers. They see, indeed, all too often, great wastes, great gambling in, and other abuses of food. As a result, we have the middleman problem. Middlemen lost

vastly the trust of the public during the Great War through so poorly performing their functions as to need public control of the most extreme sort. This control was well done by the Hoover Commission, but the ills of the middleman plan of food handling is still a theme of big public interest. And the menace threatens ceaselessly, as the steady change of people from the food-growing classes to the food-eating classes—the well-known shift from country to city—goes on apace.

Neither the entire scope of this shift nor its remedy have thus far shown themselves to the deepest study of statesmen, yet, everywhere, there is alarm over the vigor of the movement and dislike for its results. The census reports of 1920 show that much over half of the people of our country live in cities and towns, and that the rate of growth of towns and cities during the past decade exceeded 20 per cent. On the other hand, the number of actual farmers as food-growers has decreased during this period by nearly 1 per cent. True, this loss of people to the farm regions is not an unmixed evil. Many, indeed, were freed from further duty as food-growers by the fact that a machine took their places. Farming has been made more profitable, too, by the absence of the competition from those who passed to the city. But the open country has also been made less lovable as a place to live in because of the lack of neighbors, and rural life has been made harder to keep up as a result of this shift. But above all, the known supply of food for the nation has been cut down by the loss of country-growers and the growth of city-users.

The sharing of our loaf with friends across the seas has been a big aspect of the uses of food in late years. Prior to the Great War, the export of food from this

country had sunk to a fairly negligible amount. But, the giving up of food raising for the business of fighting during this period brought a greater demand upon us for food from foreign nations than was ever before known. Indeed, it was the huge purchases of foreign governments in our grain and meat markets, made in the early years of the War, which first broke down our home plan of food handling and left it everywhere in ruins. And it was the feeding of the wholly dependent allies and of our own fast-growing overseas army in the last years of the War, which gave the need for an export of food which is without equal. The post-War days also found European peoples looking to us for food. In spite, therefore, of high prices for farm products in this country, and an adverse rate of exchange against foreign nations—the highest ever known—our shipments of food during the two post-War years were the largest of all history.

Finally, the more notable uses of food would not all have been told, if its uses for hospitality and social purposes were left out. The good will which the Indian evinced toward his visitor by giving the pinch of salt has, for its modern symbol, the various dinners, feasts, and banquets with which we welcome our friends. The use of food for social and good-fellowship purposes allies itself with nearly all the big activities of life. The "family dinner," as a tie which binds, is seemingly made use of among kinsmen the world over. Banquets have always been an aid to diplomacy and, recently, the business man has found the worth of a meal as an urge to the "getting together" process so needful to modern business. The many clubs and especial eating places of our cities testify loudly to this. Even for ceremonial purposes, food has no small place. Not to mention its use in sacred rites, the state

dinner has still a large place in inaugurals of all sorts, college commencements and the world of the fraternal orders. Its well-known uses for decorative purposes need no recital here, since few displays of food are made, which do not court the eye as the open doorway to the appetite. Few things there are, indeed, which have more uses than food, and the economics of a supply is much biased thereby.

FOOD NUTRIENTS

The rationing days of easy memory, when food was bought from a ticket and certain rare sorts were not bought at all, taught our nation the useful lesson, that food, as a rule, must be looked to as a nutrient rather than as a mere appetite joy. One's taste for foods may not, of course, even now be set aside, and the ratio of identity between the taste of a food and its nourishment has nowhere been fully worked out. In spite of this, however, it is food nutrition which promises to be the goal of our future food quest rather than that of mere palate pleasures. It is doubtless too much to expect that the literal following of the balanced-ration programs of the food charts will guide our food choices in the near future any more than in the past. The habits of a lifetime are indeed not quickly overcome. But no one may doubt that the knowledge of the protein, carbohydrate, fat and calorie make-up of our many foods will prove helpful when the scarcity of foodstuffs becomes more acute. The careful insight of our mothers in urging us to eat the food "which makes you grow" bears witness to the fact that qualities were early seen in foods. Science has, in fact, only made these qualities to stand out and has given them definite names.

Indeed, the knowledge of innate qualities in food has

been used in other spheres than that of the human dietary for many centuries. Live-stock feeders throughout the world have known the merits of a balanced ration from the earliest times. They have urged the merits and have made the closest studies of foods to find out which ones might be fed with most gain to the herd or drove. In fact, the effects of food in live-stock feeding are now so exactly known that a certain weight of flesh may be foretold as the return from a certain supply of food. The case of the five and a half pounds of mixed feed which will produce a dozen eggs, or the well-known Hoover formula that one hundred pounds of pork is the meat equal of thirteen bushels of corn are well-known examples of this fact. Perhaps it is the lack of a profit-seeking motive in human feeding which has caused the neglect for so long of nutrition teachings in this realm.

Foods when looked at from the point of view of their nutritive value are broadly grouped: (1) as protein bearers, of which the cereals are a good type; (2) as starchy or carbohydrate foods, of which the potato, rice, sugar cane and sugar beets are the best examples; (3) the fats, such as meats, dairy products, and certain oils; and (4) the condiments and auxiliaries which are typified by teas, spices, coffees, vegetables and fruits. The nutritive purposes in the human system which these various elements serve are shown plainly by their names. Briefly told, the proteins are, in the main, the muscle and structure builders of the body. The carbohydrates give the fuel or energy in its most usable form, which is needed by our physical beings. Our stores of heat and energy are given by the fats, while certain mineral factors, vitamins, and acids are obtained from fruits and vegetables.

It must not be thought, however, that the special work

of any one of these foods prevents it from yielding other services as well. A study, for example, of any one of the well-known tables of food values shows more or less ability on the part of every common food to yield the three main nutritive elements named above. It is the fact, however, that some are especially fruitful along the line of a single element, which causes one food to be known as a protein bearer, another as a carbohydrate, and another as a source of fats. The nutritive elements—at least the proteins themselves—vary in make-up according as they are found in one food or another, but, as a rule, the services of each are quite specific.

Foods are still further grouped, from the point of view of nutritive value, as elementary foods and derivative foods. The cereals, forages, fruits, and vegetables are all members of this first group, since the nutrients—proteins, carbohydrates, and fats—begin here and may be taken from these foods directly. On the other hand, meats, dairy foods, and poultry products are derivatives, since the growth and force elements found in these foods have come from the first-named class. They are, in fact, thus brought up again, but in condensed form. Roughly speaking, the two groups set up on this basis may be likened to the well-known farm project divisions of crops and live stock. The chief import of the grouping lies in the fact that a growing people must oftentimes give up wholly, or in part, the derivative foods as a means of life, and rely mainly upon the first sources. Indeed, the rivalry for food between human beings and live stock in certain lands has reached a stage where the brute rival has gone down and out, the entire food products of crops now going to the human table. Living, in other words, is obtained from the prime sources in these countries.

The widely spread food cult known as vegetarianism is not merely the pursuit of a belief among these people; it is indeed, the following of a real need.

The amount of food which must be used by a human being for a daily ration is fully equal in importance to that of the quality. Here, too, scientific study has found some stable basis for making judgments. The unit of quantity by which nutritive benefits are measured is called the calorie. As is well known, this unit is a heat measure, but, since the process of changing food to flesh and force is simply a burning or oxidizing process, a heat unit may rightly be used to testify as to the reactions which the nutritive process calls forth. Calories, therefore, are not the direct, but rather the reflex, measures of the worth of food. It is almost everywhere agreed upon that the normal man must have some three thousand or more of these reactions or calories per day in order to live properly.

The purposes of food in the human body have had some study, without doubt, since man's powers of thought were first struck by the food-using process. It was only in the last century, however, that systematic and scientific study of the matter was begun. The French savant Lavoisier in 1870, through his great discovery that food changes in the body are the changes of burning or of being oxidized, gave the main impulse to the study. The later work of Rubner in finding the ways to measure the heat given off by this burning process made the second step in the science of nutrition. Later, the American, Atwater, in 1890, through the use of the respiration calorimeter, gave a definite turn to food studies of every sort. This he did by further work upon food changes in the processes of digestion, as well as in the study of the chemical elements in food itself. Nutrition has now come to the stage of a

well-based science and its study is carried on in college and university courses everywhere.

APPETITE FOR FOOD

Taste.—Much as scientific study has done to explain the nutritive needs of the body for food, in the way shown above, yet the whole demand for food would not be told, if the question of taste were left out. The fuel needs of a coal furnace, in fact, could well be stated in like terms with those which we have used in the case of the body uses of food. We would need to supply only the names “heat units,” “refuse,” etc., used in coal technic, for the terms “protein,” “carbohydrates,” “fats,” and “calories,” to make the likeness complete. But, as the experience of every one tells him, much more is involved in the feeding of the animal being than is true of the proper stoking of a furnace. Men and other animals have their habits and traditions—in a word, tastes—with regard to food, and these must be fully respected if a proper dietary is to be made up.

The psychic or taste element which we have just spoken of is a product of age, climate, birthright, fashion, religion, health, and sickness. The force of this element is beyond doubt, and no food scheme will be complete if it merely stresses the protein, carbohydrate, and fat features of food. So closely tied together are the digestive ways of man and the psychic that the richest foods may be of little use, if not agreeable to the taste even in so small a matter as the method of serving. In addition, the best of foods have often been rejected by man, even when death was the result, because they were hateful to his creed, his race, or to other mental or spiritual spleens.

The stress which was put upon bread in the late War is an easy proof of this. As is well known, the English government went to the extreme length of prepaying in part the price of every loaf used by its subjects rather than have them go without. A fine tribute was in this way paid to the Englishman's love for the wheaten loaf—to him, the veritable “staff of life.” So, too, the well-known dislike of our overseas allies for the use of corn meal was not based on any nutritive failure in this food. It was simply the fact that they were not used to it, and the psychic aspect here, as it always should be, was given due weight.

Variety.—The sound demand for food must have, besides a proper quality and a full quantity, a broad variety of kinds. This is called for from the side of physiology, because the food elements are seldom found rightly balanced in any one food and many kinds are, therefore, needed in order to give all the factors wished. But even the food elements themselves vary in nature as they are found in one or another food-bearer. The work done in the body by meat proteids, for example, is markedly different from that done by those found in cereals. No other food of any sort, perhaps, is more rich in proteids than is the ordinary meat gelatin. In spite of this fact, however, meat gelatin is nowhere any longer thought of as having high food value, owing to the low quality of these proteids. The healthy instinct of our mothers, which led them to put many things upon the table, was an almost divine guidance toward the end of sound nutrition. All the elements of growth and energy were thus made available, and scientific study has since simply made clear their custom and indorsed it to the fullest extent.

But variety in food is called for even more loudly by

our taste or appetite than by our physical welfare. Wants or desires, as these cravings are named, have in every instance the trait of being satiable, and the distress of satiety from a single food may be overcome only by the flavors and textures of a variety. The rational dietary ideal, therefore, is to carry the use of one food only to the point where more of it would be of less comfort than would be the pleasure from some other. In brief, the proper balance of food elements may be had at every meal, but both our appetites and the nature of these elements themselves require that they be brought in by different sorts of foods.

Variety of diet, further, is far from being a question, merely, of having the price with which to buy the sorts of food that one desires. Palate pleasures to the rich and poor alike may easily surfeit one with too many carbohydrates or fats, leaving the protein needs to take care of themselves, or *vice versa*. Variety, unless it helps the balance of elements which right diet requires, does little more than give short-lived joys and cause outlay. Some rational variety is, therefore, imperative. A recent canvass of the orders given at the Childs' restaurants in New York City showed a possible variety of more than two hundred dishes which could have been ordered. There were, of course, to be found in these all degrees of nutritive elements and at a wide range of prices. The favorite choice which the canvass turned up, however, was the radiant tomato—a vegetable with an extremely low food value. At the price, besides, which must be paid for tomatoes, the cost of getting nutrition in this way was hundreds of times more than would have been the result by the use of some cheaper and richer food.

A laborer's family in New Jersey showed an outlay for

food during the period studied of \$34.95. Of this, \$5.16, or 14.8 per cent, was paid for oranges and celery—two foods of very low food value. Indeed, both together gave only one per cent of the total energy and protein worth which could have been bought with a like sum laid out on richer foods. It is outlays like these which show the chances of having great costs in a varied diet without having at the same time great benefits.

DIETARIES AND FOOD NEEDS OF A PEOPLE

The facts with regard to food use by a people may now be taken up in order to show the relations between the ideal in food use and what really takes place. Food demand itself, we may say by way of preface, gives a by-product of no mean order. This is the well-known service of guiding the direction which production shall take. Standards of living, changes in fashion, and variations in demand are no less closely watched by the modern food-grower than are soil fertility or new methods of farming. Selling price itself, as set forth by a modern school of economists, is wholly the expression of demand, and markets are everywhere rated, as they are near or far from the consumer, as primary and secondary markets. Producers or their agents, the middlemen, may try to mold or direct this demand by advertising of many sorts, but this in itself is a tribute to the strength of the great force of demand. The market, which is merely another name for demand at work, more and more controls output of every sort in the modern world, and must be kept steadily in mind if production is to follow its proper channels.

Let us ask now the question: What kinds of food do a people want and how much of each is desired? The

answer to this query can be found out only through what is known as a food survey. Many food surveys have been made from time to time by different peoples in order to answer this question, but not always with the best results. Too often a food survey has been a canvass, merely, during the period in question, of the yields of crops and of live stock. The belief has been that these, less a few drawbacks on account of stores and waste, would equal a people's food supply. Nowhere is the famed "slip between the cup and the lip" more easy, however, than in cases of this sort. The ways in which crops and live stock may not serve food purposes prove, indeed, to be very numerous. At any rate, no real success has ever been shown in these surveys by which the exact sum total used as food has been told.

Recently, however, there has appeared a study of food consumption which takes up the question directly. This indeed is a study of food use which avoids results gathered from far-fetched deductions, and goes at once to the question of the food actually consumed. The inquiry was made by Dr. Pearl, the statistician of the Hoover Food Commission, and the results of his efforts will now be used in telling how much food and what kinds are really used by the American people.

The nutrition bearers or foods, it may be said by way of foreword, are, as a matter of fact, the equal in numbers of the kinds of plants and animals with which the world is supplied. This is true because there are few or none of these which fail to yield some proteins, some carbohydrates, and some fats. The taste or appetite of man is, however, so much in control, as compared with growth and energy benefits, that but a small number of these plants and animals are actually used. Within the

plant kingdom, for example, we are told by De Candolle¹ that there are 1,400,000 known species of which not more than three hundred are ever used for food. The animal kingdom, one sees clearly, affords a much smaller number. Yet, even of these few types of the animal and plant kingdoms, which may be singled out, the number used by Western peoples at least is much less. A few chosen foods, such as the cereals, the meats, the fruits, the vegetables, the sugars, the dairy and poultry products, the oils, and the nuts command the whole field of food supply with us, and make up the elect of the articles found in the dietaries of our people. The matter simmers itself down, therefore, in brief, to a matter of having enough of these staples, in order that the nation may have an ample food supply.

Food-bearers of the sorts just named have come into the Western world largely by migration. The authors of Gregory, Keller and Bishop's *Physical and Commercial Geography* say in their very able text:

If one leg of a compass could be placed upon ancient Nineveh and a radius of a thousand miles or so be taken, the perimeter of the circle thus described would include the seats of the effective domestication of the great majority of our best cultivated plants.²

The case, as put by these same authors, is not different with regard to our food animals also, except that some of these came from still further east into Asia than was true of the plants. America, as is well known, was the birth-place of but few leading foods. Corn, potatoes, the wild

¹ De Candolle, *Origin of Cultivated Plants*, p. 366.

² Gregory, Keller, and Bishop's *Physical and Commercial Geography*, p. 158.

turkey, and perhaps a few minor plants and animals make up our whole offering. Our whole supply of food plants and animals, therefore, is in the main, the result of a two-fold migration; first from Asia to Europe, then here.

Turning now to Dr. Pearl's book, *The Nation's Food*, we find that, as a whole, the typical American uses rather more of the foods which come from cereals and other crops directly than those obtained from live stock. Primary foods, as the first group is named, are more relied upon than the derivative or secondary foods.

It is shown, for example, that 61 per cent of our growth and force elements are obtained from cereals, fruits, and vegetables, the regular forms of the primary foods. On the other hand, only 39 per cent come from meats, and dairy and poultry products, the chief foods which are derived. In spite of this, however, few other peoples in the world, the book shows, live so largely from flocks and herds as is the case with us. In addition, the treatise points out that nothing save a great growth in numbers of people or a vast decline in food output, or both, will cause us in the near future to change our diet in the direction of vegetarianism.

The entire use of food by the American people is little short of an enormous amount. The figures themselves used by Dr. Pearl give no real or actual picture of this amount simply because it is beyond the power of figures so to do. It may be put down, however, for purposes of record, that the average annual use of food by us during the years 1911-1918 equaled 130,000,000 of calories.³ The amount shown here gives a per capita use of food to our people which, with two exceptions, is

³ Pearl, *The Nation's Food*, p. 229.

the largest amount used by the people of any nation in the world. The two exceptions in question are Canada and Argentina, the peoples of each of which have a higher average consumption than ourselves. Exactly stated, and this brings these huge figures to a basis where they may be partly grasped, the average one of our fellow countrymen used, during the period shown above, fully 4,228 calories per day. When we recall the fact that the standard food ration, set down as needed by man in the typical food chart, calls for only 3,000 calories, it will be seen at once that the American is in no sense underfed.

The foods which have first place in the affections of our people, as shown by the facts of actual use, are also a matter of interest. These, when judged solely from the point of view of the nutrients consumed, are: (1) the cereals, which give 35 per cent of the calories found in our food supply; (2) the meats, which give 22 per cent; (3) the dairy products, which yield 15 per cent; (4) the sugars, which give 13 per cent; (5) vegetables, which give 5 per cent; (6) vegetable oils and nuts, which furnish 5 per cent; (7) fruit, 2 per cent; and (8) poultry products, 2 per cent. Wheat is easily in the first place among the grains, and the hog has the same rank among live stock. "First place in the affections" is a phrase which doubtless contains more poetry than fact when used to explain our choices of foods in the order given above. In spite of this, however, by virtue of food merit, or of cheapness, or of taste, these are the foods graded in the order of actual consumption which show our preferences for some reason or another.

The sharing of the food of a nation by the various groups or classes of its population cannot be shown with the same nicety as is possible in respect to its amount.

The need for doing this has appealed to some, however, and the shares of two classes—the farmers and the factory laborers—have been recently looked into. The first of these classes has seldom been thought of as having a food problem, yet a recent bulletin from the Minnesota Agricultural Experiment Station shows that here, too, commerce has had its way. The typical farmer, so this bulletin claims, buys from the market more than half of his yearly food supply, and three quarters of his entire living.⁴ Like the town and city dweller the farmer, too, has become dependent upon the market.

The laboring class, which is looked upon as being at the opposite extreme from the traditional farm group in regard to a food supply, is so regarded very properly. Streightoff⁵ shows that this class is, as a common thing, at least a fifth short in the amount of proteids which a standard ration would assign them. In “hard times,” or in cases of a crop failure, the members of this class really suffer. The sociology of nutrition, as the study of the sharing of the national loaf among the various classes is called, has had to do in the main with the pauper class. Even here, however, it has not been given the study which it should have. The study, for example, which permits the relief of this class, as it should be relieved without still further degrading its members, has not yet been made.

⁴ F. W. Peck, *The Cost of Living on Minnesota Farms, 1905-1915*.

⁵ Streightoff, *The Standard of Living and the Industrial Classes of America*.

CHAPTER II

FOOD VALUES AND FORMS

NATURALLY, certain ones of the three score and more kinds of foods which we make use of are of more worth in yielding the nation its growth and force materials than others. Not only are many food-bearers too scant in amount to be of much use in feeding a people, but many also are low in food elements of every sort. Garden stuff, for example, gives certain needed helps to digestion, and some of it also gives the helpful vitamins. On the other hand, the parts of these products which are merely water or waste are so great that their protein and energy worth may properly be overlooked. The protein, fat, and carbohydrate content of a small amount of wheat, for example, is greatly in excess of that of a bulky cabbage.

FOOD VALUES

A few foods in fact, which are rich in food elements and of which the yearly yield is large, are our chief standbys. These few give the many millions of calories which make up the daily needs of our people for food. As listed by Pearl, these may again be given in the order of their rank, as wheat, pork, dairy products, sugar, beef, corn, oils, potatoes, and poultry products. "These nine great foods," says our authority, "furnish at least 91 per cent of the daily nutritive supply of our people." A work on foods requires, therefore, that some study in detail should be given foods with standings like these. Before

taking up a task of this sort, however, let us notice the criteria which are made use of in judging foods.

Food stuffs of any sort will show a food value or lack of it according as (1) the ratio of food elements to the waste which they contain is large or small; and (2) the degree to which these elements are open to use for body building, heat and force purposes—in a word, their digestive qualities. From these two aspects, then, the richness in elements and the degree of easy digestion, the two points of view are found by which the relative merits of different foods are now everywhere judged. No student ranks a food high which is poor in proteins, in carbohydrates, and in fats, or is stubborn in giving up these or other elements.

The dearth or plenty of nutritive elements in a food is found out by chemical analysis and modern methods have given a high grade of accuracy to these studies. The amounts of the three great nutrients in any food and the calories of heat or energy-giving power which it contains are now well agreed upon, since a great many tests have been made by many different chemists. The following table shows not only the analyses of the prime foods named above, but also those of ten or twelve more of the common sorts. The table in question is taken from the reports of the United States Department of Agriculture, and is one of the records most widely quoted.

A mere glance at this table will show the wide extremes which prevail among our common foodstuffs with regard to nutritive values. Some foods are very rich in the elements which make for body building; the oils on the other hand yield fat almost wholly; sugars are purely carbohydrates; while wheat justifies its title as "the staff of life" by showing a fair display of every sort of food element. It is of no use, in fact, to seek growth elements from sugar

nor energy nor heat supplies from apples and potatoes.

Growth and energy factors in foods are sometimes made use of as the marks for grading or classifying cer-

FIGURE 2.—FOOD VALUES

Foods	Refuse per cent	Water per cent	Protein per cent	Fat per cent	Carbohydrate per cent	Calories per pound
Wheat	0.5	12.0	11.4	1.0	75.1	1,685
Pork	18.0	42.0	15.0	25.0		1,400
Dairy products						
milk	0.7	87.0	3.3	4.0	5.0	1,100
Sugar					100.0	1,820
Corn	0.9	12.6	9.2	1.9	75.4	1,635
Beef	17.4	49.9	8.7	14.0		1,070
Oils				100.0		4,040
Potatoes	20.8	62.6	1.8	0.1		295
Poultry products.....	12.3					
Eggs	12.3	65.5	13.1	9.3	14.7	635
Green vegetables						
cabbage.....	15	80	1.0	0.2	3.8	121
Apples	26.3	63.3	0.3	0.3	10.8	190
Nuts						
English walnuts.....	28.0	16.0	11.6	21.0	23.4	1,415
Legumes						
navy beans.....	3.5	12.6	22.5	1.8	59.6	1,520
Rice	0.4	12.3	8.0	0.3	79.0	1,620
Rye ..	0.7	12.9	6.8	0.9	78.7	1,620
Oleomargarine	6.3	9.5	1.2	83.0		3,525
Fish	2.6	63.5	21.8	12.1		915
Bananas	35.6	48.9	0.8	0.4	14.3	260

tain foodstuffs. Thus, for example, in the case of fluid milk, the amount of butter fat present or absent gives the milk the grade to which it belongs. This is largely due to the ease with which the element in question, through employing the familiar Babcock test, may be got out, but it is also due to a certain control which butter fat in milk exercises over the other elements. Farm fertilizers and

stock feed are also graded by their content of elements as found out by chemistry.

FOOD DIGESTION

The dearth or wealth of a foodstuff in nutrients falls far short, however, of giving the last word as to the food value of the stuff in question. The ease and entirety with which it yields these elements to the uses of the human body is of only little less moment than is the presence of the elements themselves. The ease and fullness with which sugar, for example, is taken up by the digestive system—it is said that a “helping” of sugar is taken up by the human body in fifteen minutes—differs in a wide degree from the way in which certain greasy foods give up their content to the human organism.

Digestion, as this inflow of food elements to body uses is called, is a vastly complex feat of physiology. It differs widely with different foods, between one person and another, and even between one climate and another. So much of sameness there is, however, that through widespread studies, the degree of entirety with which various foods yield their nutrients has been found out. A list of the relative yields of different foods through digestion is thus made possible. This has been made up and is known as a table of digestion coefficients, and in part is as follows:

FIGURE 3.—DIGESTION COEFFICIENTS

Foods	Per cent of protein diges- tibility	Per cent of fat digesti- bility	Per cent of carbohydrate digestibility
Wheat	85	90	98
Pork	97	95	98
Dairy products ...	97	95	98
Sugar	00	00	98
Potatoes	83	90	95

One may now easily see that, with the data furnished by the two tables quoted above, the food value of any material may be found with a fair degree of accuracy. The worth of wheat is hurt somewhat through having a rather low ratio of digestibility, although its make-up of food elements is fairly high. Potatoes, however, rank low in both respects, and their wide use as a food follows from no merit of food richness which they possess. On the other hand, they have a good taste, answer as ballast for the digestive processes, are generally cheap in price, and for these reasons they are made use of.

Food is given a higher value for nutritive purposes also by the modern methods of cookery, or of preparing it for the table. Adapting food in this way for final consumption purposes is as truly an act of manufacture as is the turning of cotton fiber into cloth or of pig-iron into knife blades. Both add to the utility of raw material. Loath as is the exalted manufacturer to identify humble cookery with his own great pursuit, yet both are at bottom kinsmen, and both pursuits have undergone vast changes in recent years. The basic processes of boiling and baking by which plant and animal tissue is broken up and fitted for bodily uses have not been changed of course from what they were originally. But the better appliances and methods, and the widespread use of these in making food fit for the table have added much to the worth of the foodstuffs as satisfactions of human desire. Invention, for example, has given to the food-preparing art the cooking range—coal, gas, and electric—the fireless cooker, the refrigerator, and the thermometer. Bacteriology shows its antiseptics of many sorts by which food is kept from spoiling, also its germ cultures of great variety by which new flavors and other taste qualities may be imparted,

and also the nature of some germs which are poisonous.

Modern cookery, however, in its efforts to turn all the elements of raw food material into some edible dish has had more help from chemistry than from any other source. This science has given the exact make-up of the foodstuffs as to the elements that make for growth and energy which are commonly shown in the well-known food tables. By the use of the calorimeter, further, the energy-power of these foods may be measured so that one may now tell exactly the foods which should be prepared in order to fit the different dietaries. Chemistry has also given certain new foods, such as the oleomargarine and the beet sugar, and has helped more or less with every process which has to do with making foods ready for use. The food guards, which help to carry over the seasonal gluts of food supply, either by icing or by antiseptics into other parts of the year, have also been added to vastly by chemistry. Little waste of food need now take place anywhere with so many devices for preserving it.

A craft technic with such features as the account just given assigns to modern domestic science could hardly fail to give better results than did the open fireplace cookery and homemade recipe methods of a dozen decades ago. No careful saving of all the food elements which a foodstuff contained could possibly take place in an open fireplace source of heat and with the crude utensils which went with such a source. Food preparing was a "rule of thumb" task in those days instead of the precise art toward which it is now tending everywhere to become.

In addition to the bettered yields to our tables from foodstuffs through modern utensils and kitchen methods, the wholesale manufacture of food has helped to the same end. "Prepared" foods—a "living out of a can" as it is

sometimes called—are now found in every branch of diet supply, and the same benefits are had here which spring up from every sort of large scale manufacture. Appliances are on a large scale, and mass quantities of food may be processed at once. The most effective power also is used and materials are worked over so as to give every possible product which they are capable of yielding. The modern dairy method of making butter, in contrast with the old-fashioned household way, gives a typical proof of the merits of this new plan over the old one. The household way was crude and haphazard with little control over either materials or methods, and the results were also haphazard. Scientific tests were not used as to the purity of the butter fat, its heat or lack of it was not under control, and the butter-making utensils, through little use, were not kept up as to sanitation or cleanliness. The best proof that in the dairy the reverse of all these things is true comes out in the fact that the product here made is brought to a standard or grade. Each unit of butter is uniform with every other unit which the dairy makes and may be sold as such. In addition, cheap power has been used and the by-products are in large enough quantity to be sold at a profit.

In the food-preserving realm, the use of large-scale methods tends also to become the rule. J. Russell Smith in his book, *The World's Food Resources*, says:

The canning factories of the United States prepare yearly from twenty to thirty pounds of fruits and vegetables for each man, woman, and child in the country.

Truly, this could be done only by the use of large-scale methods.

The same saving of food materials through the use

of wholesale methods is found here, too, as was shown to be true in the case of "prepared foods." The product is better through being cared for under fixed conditions as to heat, devices, and expert labor. Some preservings of foods, indeed, can scarcely be done to advantage except on a large scale. Thus food dehydration, which is now a fairly common process in the curing of fruits and vegetables, requires at the very start a power-fan device which must be used on a large scale in order to do its work cheaply. Refrigeration, too, when meant to keep food over a long time, must be done on a wholesale basis. Cold-storage warehouses are the best proof of this, and they are now everywhere coming into wider and wider use.

Modern methods of getting the best out of food materials, whether in the kitchen or in the food factory, are now everywhere growing in favor. Indeed, as much effort has been given toward pushing these methods into general use as was given toward bringing them into existence in the first place. Cookery classes are now a part of our school programs everywhere. Women's clubs and churches have worked for better cookery. Dietetics are a part of the courses of study of many colleges and universities, while huge endowments have been made for nutrition studies both by private and public funds. In this way, the complete use of food materials is brought about and our yield of food elements is larger, thereby, even if no greater quantity of foodstuffs is grown.

FOOD YIELDS

The original food values of different materials are set, as we have seen, by the nature of their make-up and of their pliancy to body uses. In a secondary way, these are

added to further through feats of skilled cookery or of manufacture. It now remains to be seen that the gross amount or quantity of food is also of much import in the feeding of a nation. The quality of a food indeed, may be high as to elements and as to digestive ease, but the quantity may be so small in amount as to go but a little way toward the support of a people. The peanut, for example, has a nutritive value of 70 per cent of proteins, fats, and carbohydrates, while the potato is as low in these values as 16.6 per cent—almost 80 per cent of the tuber, in fact, being water and refuse material. Both have an equal degree of take-up by the human body. But the annual yield of potatoes open to our people for food is in excess of 400,000,000 bushels while that of the peanut barely equals 33,000,000 bushels. The potato rightly, therefore, ranks eighth in worth among the foods of the country as a national food, while the peanut is of a much lower rank.

The fact of plenty, indeed, is the fact the world over which has given us the well-known national foods of different peoples. The Chinaman's rice, the Eskimo's blubber, the Irishman's potato, the Scotchman's oats, and the Arab's dates were hardly the foods which would have been the free-will choices of these peoples as to their nutrients. Entire freedom in the making of choices of this sort comes only with perfect trade with other countries, and this these nations did not have. On the other hand, these articles of diet have been the staples of the peoples in question for many ages. Natural conditions in fact made the foods named the ones of plenty to the peoples concerned, and the pattern of their diet was cut according to the cloth which they had at hand.

The plenty or lack of an article of food to a people

is the result of many things. Naturally soils, climate, rainfall, and farm customs are vital to this matter, and each of these will be dealt with at length later. But some general facts which are effectual with regard to the plenty or the scarcity of foods may properly be shown at this place by way of preface. The first of these has to do with the effects upon a country's food supply, which comes from a swollen population. Swellings of this sort are not hard to find, since the census rolls of most nations show doublings and redoublings in the human birth-rate within the past century, and these feats will doubtless be repeated. Many countries have come, indeed, to the bursting point with numbers during this time. In fact, there has been no reason more often given for the wars of modern times than the simple one "that the attacking nation must have more land for a food supply or perish."

One effect of dense numbers in a country is to cause certain articles of food to be grown which are unlike the ones which were grown during the times of a thin population. In our own country, the end which has been put to the supply of wild game is a case in point. Buffalo and other wild game were a means of food to no small numbers of people in the years of our early history, but now, on the other hand, gratuities of this sort are hardly thought of from the point of view of a food supply. The law of the effects of density of numbers upon kinds of food seems to be this, that the light-yielding food projects must give way to heavy-yielding ones with every pressure from population. The invasion of the cattle ranges of the west in recent years by fields and crops is typical of what takes place as population grows denser. In addition to this, the trend of our wheat-growing areas toward the frontiers through the push of the heavy-

yielding corn, and the turning over of city suburbs to truck instead of crop fields, are further examples at hand. The selective effects of density in numbers, then, must be given its due weight, if we are to account fully for the kinds of food which are in large supply with a people.

The food supply of industrial nations—a class to which we will sometime belong—is obtained almost wholly as the result of trade. Since the work of this great labor-saving device is carried out now on fairly exact lines, the probable plenty or dearth of food from this source may be truly given. Trade, at its roots, is, as every one knows, a process for the common benefit of both sides. The special products of one nation are exchanged for the special products of another. The peoples of some nations—England, for example—may at present be said to have their dwelling place in one country while the food by which they live is found in another. Since trade is quickly seen to be a reciprocal affair among nations, the food which a factory nation may get from a farming one depends strictly upon what the factory nation has to offer for the same. Nothing is surer than the fact that a foodless nation must direct its industries toward the things which can be traded for food.

In this respect, the making of cutlery in Birmingham is in reality the growing of some food crop for English use—totem-pole making in Birmingham, on the other hand, would cause a very certain crop failure. Since reciprocal demand is the basis of trade, nothing is surer than the fact that for a long-time trade neither country involved must be able to duplicate the products of the other. We may not expect, therefore, everlasting trade with our European kindred since we as well as they, may each produce anything made by the other.

Countries with a disparity of natural conditions, on the other hand, will make the best mates for trade purposes. Our own proper opposite, in fact, is some tropical country—tropical products, coffee, bananas, etc., finding a ready market with us, our temperate zone products going back in repayment. This must always be so, since the soil, moisture, and climate needs of different crops put out of the question the possibility of either people producing everything which it desires. The outcome of this truth, somewhat baldly stated, is the fact that we must have factory trades or farm products which will plant crops in torrid lands.

THE BIG FOUR

Few things are more striking in the study of foods than the discovery of the narrow limits within which their food-bearers are found. Of the many millions of calories of food used daily by our people, for example, almost three fourths of the entire amount, as Pearl shows, is obtained from no more than four great staples. These four, when named in the order of their yield of food elements, are wheat, pork, dairy products, and sugar. The members of this group are not only our greatest food-bearers, but they are indeed very much the greatest. Taken separately, the nearest rival to any one of these of the "big four" gives only half as many calories as the lowest one of the wheat, pork, dairy stuff, sugar group; taken as a group, all the other foods put together are equal to only a quarter of their worth. These four products may now be studied with profit as to their food forms and production habits, since they are truly the trust of our nation for a pleasing and an ample diet.

Wheat.—This is one of the oldest of our cereal foods

since grains, which are almost identical with the wheat grains of to-day, have been found in the very oldest of burial places of Egyptian mummies. It is also one of the most widely used grain foods in the human dietary. Its gift of growing in different soils and climates is so perfect that the steady garnering of this crop goes on in some part of the world the whole year round. This fact of its world-wide harvest, taken together with the really small amount of labor needed in its culture, makes wheat a very plentiful grain, hence cheap and widely used.

Bread is the chief food form in which wheat comes to our table, but macaroni, pastries, and breakfast foods are also common. The peculiar nature of its protein or gluten, as it is called, is the chief reason for the world-wide love of wheat bread. The sponginess of wheat dough and the light and porous nature of the baked loaf are both effects from this gluten element—a quality which is given in the same degree by no other food product. The palate joy in food among all civilized peoples is pleased everywhere by the taste of wheat bread. In the late War, for example, no effort in keeping up the morale of their subjects was given more support than that made by the allies at least in seeing that their armies and peoples were given a full measure of bread.

No other raw material source of food stands near to it in general importance. It is first among all our food sources in the production of proteins, carbohydrates, and calories, and fifth in the production of fats. The calory content of the wheat crop is nearly double that of its nearest competing commodity. The same is true of the protein content, while in carbohydrate content the average net wheat crop for human consumption is about six times as great as the nearest competing commodity. About two per cent also of all the fat produced in this country is found in the wheat crop.¹

¹ Pearl, *The Nation's Food*, p. 92.

The national way of eating bread adds greatly to its food worth. A glance at the table of food values on page 21 shows that the chief defect of wheat as a food lies in the lack of fat. It is rich in proteins and carbohydrates, but low in fat. The almost world-wide custom of using butter or some other fat upon bread cures this defect, and makes of the loaf a fairly perfect food. To English-speaking peoples, at least, the very name bread has a high place of esteem, because the wording of their Bible identifies this term with food. "Give us our daily bread," "Man does not live by bread alone," "Bread of life," and many more examples are proofs of the supreme place which is held by this word in our tongue.

Pork.—This name together with the term "lard" is used to signify the chief foods which come from the widely-known animal—swine. The doubtful place which meats hold through being derivative, hence costly foods, is much redeemed in the case of pork through the success swine have in turning the whole of all primary foods into edible meat. The beef animal, on the other hand, is a notable waster, since nearly one half of the nutritives consumed by cattle of this sort are never handed back again in the form of food of any sort. Further, even of this redeemed half, a large portion is of distinctly inferior meat. Swine are also gross feeders, and do much toward making a saving use of waste and garbage. They are found in the capacity of semiscavengers upon nearly all the farms of the country, but are given the status of a special farm product in the "corn-belt" states of the Mississippi Valley.

Few other peoples in the world rival us in the use of meat and, especially, in the use of pork. This has come about through the ease with which, in a new country of

rich farm resources, meat has been produced. Both pork and lard are used for the fats they contain—no other food, save certain oils, being richer in this element than these two products from swine. Now, since fat happens to be the great source of bodily energy to animal beings, the worth of this food to a virile, out-of-doors people may readily be seen.

This lowly creature (the hog) stands far and away ahead of any other source in the production of fat for human nourishment with over 42 per cent of the total production of this nutrient to its credit. It stands fourth in the production of proteins and second in the production of total calory values.²

No small factor in the cheapness with which pork may be sold on the market comes from the ease and efficiency with which it is prepared for sale. The saying is often quoted "that every part of the hog finds a commercial use." The large packing houses, through the facilities of which a big part of the swine output of the country is made into pork, have stood for many years as models of efficiency in the economies of "big business." The fact is literally true that in these large houses absolutely no part of the animal is let go to waste.

Dairy Products.—The wide variety of foods which are grouped together under this title is a glowing tribute to the food-giving qualities of milk. Not even to name the many subvarieties into which every milk form is divided, these forms themselves are not scant in number. As known to the trade, the varieties of milk products equal at least six, namely, fluid milk, butter, cheese, ice cream, milk powder, and cream. Milk itself is an animal output meant in the first instance for the feeding of the young.

² Pearl, *The Nation's Food*, p. 92.

As used by human beings, its supply in this country is almost wholly the gift of the cow.

Fluid milk itself is the chief one of the six great dairy products. It is often called the perfect food, since there are in proper balance within this nutrient all the growth and energy elements plus the certain needed vitamins and certain ash elements which are needful in food. It is a product of the cold climates and the moist earth regions. The cities of the fiftieth meridian, reaching from Seattle and San Francisco on the west to Petrograd and Moscow in the east, afford the markets in which most of the fluid milk is sold. There is no wastage of rind, or core, or bone in milk and, as almost everywhere used, there is no household expense in preparing it for the table. Besides, it is used as an enrichment or flavor in the making of almost every well-known table dish.

Raw, whole milk is turned into a safe and pure food by a series of steps or processes which are now becoming well known to the milk-using public. It must be produced upon farms under set terms from healthy cows. After this, and while still under the official eye, it must be clarified to take out all traces of dirt, pasteurized to remove possible harmful germs, iced to preserve it in a pure state, and, last, safely stored until needed for use. The handling or "processing," as it is called, in this way under the public eye of all milk meant for the market has gone far towards fixing the food firmly in the usual dietary. The firm place which milk holds as a food for grown people and as an absolute necessity for children is further helped by the fact that it has no substitutes. Nothing has thus far been found which takes the place of milk, and the up or down records of infant mortality

in a city is a fairly sure index of the nature of its milk supply.

Butter is the second in rank of dairy products. In make-up, it consists of the fat element taken out from the rest of the milk and properly pressed together, and salted for flavor and better keeping purposes. As has been said before, its great use is as a flavor to bread to which it also gives the element of fat, the nutritive in which wheat is not rich. Butter-making as an industry is carried on under vastly different conditions from those having to do with the fluid-milk trade. The latter is a whole-year-round business and is done under the public eye and has a local market in some near-by city. Butter-making is an activity for good seasons only and is fairly easily given up or started again as profits are good or bad. The butter market is national in its scope, and but little official care is given to the trade. The same varieties of cattle even may not be used for either product. The favorite breed for milk-making is the Holstein, while the Jerseys or Guernseys give the best results for the butter yield.

Cheese is a whole-milk product which stresses the use of the protein content of milk rather than the fat. Cheese is the result of bacterial action in milk and has many forms depending largely upon the type of bacterial culture used. It is a food extremely rich in nutrients and should have a larger use than is now the case.

Sugar.—This is the most notable source of quick human energy that we have. Sugar is pure carbohydrate and it is to this compound, as we have seen, that the body looks for energy. Unlike the rest of our main foods, sugar is not wholly a home product but comes to us from the tropics. The United States produces within its own

borders large amounts of sugar from both the cane and the beet sources, but by far the greater part of its supply comes from abroad—the islands of Cuba and Hawaii giving the largest amounts. Indeed, sugar often stands above all other imports in the amount of money which is required in order to complete our supply.

Sugar appears in many other ways in our diet in addition to the common forms which bear the name. Some of these forms, such as molasses, the syrups, and candy, readily disclose their contents. But sugar is also a common element in milk, in most fruits, and in garden plants. Since the taste of sugar is pleasing to nearly all palates, and since modern methods of production have made it plentiful and cheap, there is no little danger of excess in its use. The American people are commonly given a place at the top in the list of the sugar-users of the world. This eminence has dangers of a marked kind, however, since foods of this sort are vastly out of balance in make-up of food elements. Great care must, therefore, be taken that sugar does not become a menace rather than a boon.

FIGURE 4.—THE ACTUAL NUTRITIONAL IMPORTANCE OF LEADING FOOD COMMODITIES TO OUR PEOPLE MEASURED IN CALORIES.*
YEARLY AVERAGE FOR THE SIX YEARS 1911-1912 TO 1916-1917.

Commodity	Absolute consumption (million calories)	Percentage of entire food consumption
Wheat	33,657,299	25.90
Pork	20,453,649	15.74
Dairy products....	19,834,010	15.26
Sugars	17,196,595	13.24
Corn	9,141,678	7.03
Beef	6,6892,851	5.30
Oils	4,700,590	3.62
Potatoes	4,366,750	3.36
Poultry and Eggs.	2,620,311	2.02
Other vegetables...	1,465,344	1.13
Apples	1,403,750	1.08
Nuts	1,196,911	0.92
Legumes	1,077,932	0.82
Other cereals.....	893,383	0.69
Other fruits.....	800,831	0.62
Mutton	791,032	0.61
Rice	774,430	0.60
Rye	590,475	0.45
Oleomargarine	542,719	0.40
Fish	534,509	0.41
Bananas	519,109	0.40
Cocoa	371,769	0.29
Oranges	138,850	0.11
Total	129,931,314	100.00

* Pearl, *The Nation's Food*, p. 236.

CHAPTER III

MINOR FOODS: THE "VISIBLE SUPPLY"

THE foods which are less used by us than those of the "Big four" group are many times more in number. They are among our best, also, so far as quality goes, but are usually too small in amount to make a major food. One or two of them, however, are even more plentiful than any we have thus far spoken of but these lack merit in taste. Not one of them joins to richness of taste the fact of plenty, as do all the four chief foods described in the previous chapter.

CORN

Among the minor foods, corn is easily the leader and pages have been written in praise of this great cereal. It is a native of the New World and was used by the Indians as food everywhere, as relics of these peoples plainly show. It has held the rank of king of our field crops almost from the first. Finch and Baker tell us: "The acreage and also the value of the corn crop is greater than that of wheat, oats, barley, rye, buckwheat, rice, fruits, and nuts combined."¹ Corn is a heavy-yielding crop, giving twice as many bushels of grain per acre as does wheat. Its food qualities are also high, showing 12.6 per cent water, 9.2 per cent protein, 1.9 per cent fat, 1 per cent ash, and 75.3 per cent carbohydrates. Since

¹ *The Geography of Agriculture*, p. 29.

corn is the main crop in our six best farming states and is grown to some extent on three fourths of all the farms in the land, no other food-bearer compares with it in total yield of food elements.

"The great gift of corn," as geographers call it, is also an easily grown crop. No field project needs less, in respect to a seed bed, than does corn, and its harvest is often put off through the fall months into the early winter. Too truly corn is not easily stored for a great length of time, since it loses flavor quickly, owing to the large amount of fat within its grains. Neither does it ship well, owing to bulk and to this same loss of flavor on account of fat. Corn is in a special way, too, the American crop, since three fourths of the world's supply is grown here. It is, indeed, so close to us as a plant that in not a few instances its blossom has had the wide support of the American people as the suitable one to become the long-sought-for national flower.

The chief demand for corn is for the purpose of feeding live stock. In fact the famous "corn belt" and the region of swine-raising have the same borders. The cornstalks and blades make good fodder for cattle, while the grains are eaten with benefit by every sort of barnyard animal. Corn is, indeed, the crop upon which our best systems of farming are built. Its place in the corn belt as food for live stock has already been spoken of, and in further proof of this use is the fact that less than 20 per cent of the crop grown in a corn belt county leaves the place of its birth. All is "fed on the spot" and answers either for feeding swine or for fattening beef cattle. Both of these two chief lines of live stock look to corn for support and could scarcely go on in this country on a large scale without this cereal. In addition

to this, farms far distant from the corn belt and where the season is too short for ripened grains also make corn the basis of their routine. These are dairy farms, and here the stalks and blades are the purposes of the crop. With the aid of a silo, a food for dairy cattle is made which rivals the root crops of Old World dairy centers in the richness and cheapness of its elements. The "poor white's"—or eastern mountaineers'—crop goes often to the making of the famous "moonshine" whisky and, here too, we have a style of farming based on corn.

Corn has few equals among plants in the different kinds of foods of which it is the source. Corn meal is of course the most widely known form in which it appears for human use. From this meal the well-known corn bread is made together with corn pones, corn cakes, and corn fritters. The lack of keeping qualities, generally speaking, is alone the barrier which prevents corn bread from having the same popularity which is enjoyed by its sister, the wheaten loaf. Corn-meal mush or hasty pudding is also made from this meal, but is less used than formerly. The eating of green corn as "roasting ears" gives a national dish, the virtues of which are now lengthened into out-of-season times by means of canning. "Popped corn" is no less widely known than any of the other products from this grain and is a standard kind of sweetmeat everywhere in the form of pop-corn balls or candy. Besides these corn dishes found in all households, corn is also the source of certain breakfast foods, of corn or Mazola oil, of corn syrup, of cornstarch, and of corn liquors. Corn hominy is a popular food in the southern states and, in fact, the use of corn in all its forms is more general there than elsewhere.

A good corn crop needs a warm climate—hot, both

night and day—a good rainfall, a growing season of 140 days and a rich soil. Plant food there must be if the task done by the seed germ is to have a proper end. The task is a huge one beyond a doubt and ranks but little lower than a miracle. The germ must lift itself in the short time of five months to a height of fifteen or more feet of stalk, must throw out blades on all sides and, at last, must yield 400 times itself in the finished ear. The crop may be called a good type of "two-story" farming also, since the growing of pumpkins among the stalks of a New England field has been the plan for ages. The scene which lay before Ichabod Crane's hungry eyes is a typical one. His creator writes:

Farther on he beheld great fields of Indian corn, with its golden ears peeping from leafy coverts, and holding out the promise of cakes and hasty pudding; and the yellow pumpkins lying beneath them, turning up their fair round bellies to the sun, and giving ample prospects of the most luxurious pies.

In the corn belt, fall wheat may be sown among the ripening stalks in the early autumn, and in this way the crop rotation on this costly soil may be hurried up.

THE POTATO

This food, like the corn, is of New World origin with a birthplace, it is claimed, not far from tropical Central America. Like corn, it also is a heavy-yielding crop—one of the heaviest as a matter of fact known anywhere to northern farmers. As compared with wheat, an acre of potatoes will yield nearly three times the food elements of an acre of the cereal and gives a crop which by care may be made vastly larger. The normal crop

of potatoes is rather less than a hundred bushels per acre with us, but, with skillful care, as many as five hundred bushels per acre of these tubers have been grown. The limits, also, within which the untillable wheat crop may be made larger are minute as compared with the capacity for expansion on the part of the potato. The potato crop is a tilled crop and, therefore, takes much labor in every phase of its growth. As shown in the census reports, the potato is a product of every county in our country save only three, thus proving that the growing conditions for the tuber are widespread. The special regions given up to its growth on a large scale, however, are along the northern borders of our land, and reach from Maine to Minnesota. It needs for maximum growth a sandy soil, a cool, short, dry season as a foe to blight and insect pests, and a freedom from frost of 90 days. The potato is bulky and frail and does not stand lengthy shipments, hence, nearness to market is another good aspect which a potato region should have.

The potato has an agreeable taste and, whether boiled, baked, fried, or roasted, is easily made ready for the table. It is more than three quarters made up of water and owes much of its gross food yield to the fact that it is plentiful. The very high content of starch which the potato has makes it a prime source of energy for those who do out-of-doors work, and it also gives the ballast or roughage needed in digestion. No other food excels the potato in widespread use upon the table except bread or the other products of wheat. No other vegetable is in the same class with the potato as a widespread article of diet. Its nearest rival in the vegetable realm goes by the same name—the sweet potato—but this root is not even a member of the same plant family with our tuber

of the white variety. Two of the chief bases of the typical American meal may be shown in the fact that wheat gives the proteins of a diet, while the potato joins wheat in yielding the energy-giving carbohydrates.

Unlike corn, which has found little favor save in the land of its birth, the potato is more widely used abroad than is true at home. Very densely settled countries in cool climates where the starch-giving rice is an alien crop must look to the potato for this source of energy. The use of the potato in Ireland, for example, was so widespread that the failure of the crop during several years a century ago made one of the great famines of all times. Indeed, the reliance upon the potato in Ireland was so complete that this country is looked upon by many as the place of its origin, and the tuber is widely known, as distinct from the sweet potato, by the name of Irish potato. But it is in Germany that the plant now gets its full meed of use; the crop in this country is in excess of twenty-four bushels per capita, as compared with four bushels per capita in our own country. The acme in number of uses, too, for the potato is also found in Germany where, besides doing service as a table food, it is also fed to live stock, is made into starch, into alcohol for power purposes, and into potato flour. As is well said by Professor J. Russell Smith:

If at any time one fears the early approach of serious food shortage, let him consider the potato and take comfort.²

BEEF

This is truly a wealthy people's food. The beef animal is in all well settled lands a close rival with man for the

² *The Nation's Food*, p. 138.

food elements found in grains and roots. The need of these elements is scarcely less acute to beef cattle than to man, and they use them less well. The rangy, loosely built cow or steer gives back but little more than half of its gross weight in edible meat in return for meals and grains and forages. The rest is waste or, at best, refuse which may be used in the making of certain by-products. Of this edible part of the beef carcass, again, only one half is of high grade quality—the rib, the loin, and the round—the balance is sold for a lower price. The proteins, then, which the juicy steak gives to the human eater are strictly “survivals of the fittest”—two out of the three of its fellow proteins having gone as waste or into cheaper meats. There is no requital for this waste of food elements either, as there is in the case of swine, because beef cattle are, under no condition, scavengers. Except where grass may be used as their sustenance, their food at bottom is the same as man’s, and grass may not be grown with profit on lands where products are needed by man.

Beef is richer in proteins than wheat and is rightly looked upon as the muscle- and tissue-making food. The food elements are more compact in beef also than in the grains or vegetables, and, hence, there is some danger from over-use. The rich flavors and tasty unions with other foods which may be obtained from beef make this nutrient the special food for the lover of good eating. The free pasture lands of our western plains during the latter part of the century just past made it easy to grow large herds of beef cattle at low cost within these prairie regions. Beef of the best quality and at a low price was at a maximum of abundance during these times such as, no doubt, will not be seen again—indeed, since this

period, the per capita use of the food by man has grown steadily less.

Beef is offered upon the markets in many forms, such as, fresh beef, dried beef, canned beef, pressed beef, and many more. Special methods of killing and dressing must be made use of for the needs of our Hebrew population, since religious scruples forbid the use of common beef to members of this race. This special variety goes by the name of "kosher beef" and is, without doubt, the most unique of our varieties. Costly food, such as beef is, must also give many grades and "cuts" of flesh in the carcass of the same animal in order to be used with economy. It is said, in fact, that meats from different kinds of live stock vary less in food elements than do the various cuts within the same beef animal.³ We have, therefore, varieties of meat in beef cattle ranging in quality from the costly porterhouse steaks down to the materials of which blood sausages are made. As is well known, more than half of the beef supply of our country comes from the great packing houses of Chicago.⁴

The high price which the consumer normally is ready to pay for a supply of beef meat has made a rich prize for the stockman's art. An animal which will give the utmost of the choice cuts of meat with a minimum of low-grade flesh and waste has been the grower's goal. Breeders, as a result, have given us through selection and skillful mating, animals highly specialized to the yielding of beef. These craftsmen have bred types of cattle in which feed, on the one hand, is turned into an amount of milk that will exceed in a year several times the

³ Conley, *Nutrition and Diet*, p. 158.

⁴ Meat Packing Industry, Fed. Trade Com. Rep. (1919), Part I, p. 31.

weight of the milk-giving animal itself. Or, on the other hand, they have bred sorts of cattle which give too little milk for the support of their young, and feed for these breeds is only the means for putting on flesh of the richest sorts. Indeed, it was the boast of an early breeder that, "given time, he could put flesh on an animal in any place he chose." The Holsteins, Jerseys, and Guernseys are the breeds of the first or dairy types, while the Herefords, Durhams, and Angus are the beef-yielding types. It is safe to say that no greater miracles have been wrought by man among plants and animals than those secured by the patient stockman in the breeding and fixing of these types.

FRUITS

A rising standard of living, together with better shipping and storing agencies, have made fruits in our day a common article of diet. Fresh oranges, apples, lemons, bananas, and grapefruits may now be had in all seasons of the year the country over, while preserved fruits of many sorts are even more plentiful. The place of fresh fruits in the diet is mainly as a body regulator, though the banana is a rival of the potato in the matter of the yield of starch. All of them, further, have a certain tonic effect which gets a hearty response of good will from those who are in the habit of using fruit. Fruits enter into the make-up of many common dishes, too, for flavoring and appetizing purposes, and some, like raisins, dates, and figs, have also a high nutritive value.

Of the fresh fruits, the most common are the apple, the citrous fruits, and the banana. This latter is wholly obtained from the tropics but, owing to good keeping qualities and to the business push of its salesmen, it has

come, in three decades, to be a table supply at will to almost every household of the land. The citrous fruits have also had much help from business push. The well-known slogan of the California Citrous Fruit Exchange that there should be "an orange per day for every man, woman, and child," falls but little short of reaching its goal. At least the fruit is now ready at hand upon this scale, and nothing hinders reaching the mark save the price and the will to buy on the part of the consumer. This last at least, one may believe is now being vanquished by the able advertising which goes forth from this Fruit Exchange of which the well known "Sun Kist" is a type.

The apple, however, is an old favorite among the fruits. The acreage in apple orchards is equal to more than half of the entire area planted to fruits and nuts within the whole country, and the value of the crop is greater than that of all the other tree fruits put together.⁵ No fruit has been longer a staple with, nor has touched the fancy and feelings of the English peoples more than has the apple. The "apple of the eye," or Whittier's "the apples sputtering in a row," or Holland's "Hearts like apples are hard and sour," are random lines of which dozens of a like kind are to be found in our tongue, that show the common joy which is felt in this fruit. The pioneer work of the well-meaning "Johnny Appleseed" in spreading seeds of the apple through the early wilderness of the Great Lakes country has laid the basis for one of our rather few native "folk tales." Few, also, of the essays of the late John Burroughs are better known or more nearly classical than the one which was written upon the apple.

Apple-growing is widely scattered throughout all the

⁵ Finch and Baker, *World Agriculture*, p. 97.

farming parts of our country save only in the region of the Gulf states. The tree itself holds its type traits rather loosely and changes quickly the style of its fruit with changes in soil and climate. Whole orchards are, indeed, readily changed from the yielding of one variety of apples to that of another by the mere feat of grafting. Limbs and twigs of the new variety are fixed to the tree trunks of the old, and the transformation is complete. A perfect medley of flavors, textures, sizes, colors, and keeping qualities are given us in the different varieties of apples through this looseness of type trait on the part of the fruit. The needs of the market, however, tend to reduce all these to a certain few of which the Baldwin, the Spy, the Greening, and the Pippin are the best known. Apples are in the main eaten out of hand, but many table dishes also are made from this fruit, and the yield of juice known as cider is almost as popular as is the parent fruit.

THE NATIONAL LARDER

Turning now from the study of individual food-bearers as to their traits and standings in the yield of nutrients, a few words should be said about the total gross amount of food held by our nation, who owns it, and where it is located.

Themes of this sort can never become a matter of total neglect to a people so long as our scheme of division of labor assigns food growing to one class, food owning to another, while food itself remains the means of life to still another. The ever-widening cleft in our national family between city people and farmers has no greater urge toward permanency than the endless discord over food. City people favor "bumper crops," big yields per

acre on the farm, and intensive farming; country people favor profitable crops, big yields per farmer, and extensive farming. Publicists urge "back to the country" movements, but, in the meantime, the "rural shift" to the city goes on apace. Over half the people of the nation live within cities and towns now, and their number is added to at the rate of at least three for every one which goes into the food-growing class. Cities, towns, and villages now number with us more than 14,000, and three of them as a group—New York, Chicago, and Philadelphia—have more than a tenth of our entire population. Under these conditions, the amount of food, its ownership, and its location are far removed from the merely academic as subjects of interest.

Food surveys by which the amount of food in the hands of a people at a given time is found out have not been very common with us. As a nation, we usually have had food enough, and details need not be gone into in the face of almost complete plenty. "Care irks the crop-filled bird." Dr. Pearl says:

If any one were confronted, as the Food Administration was almost daily from the time it started, with the naïve and simple question, "How much corn or oats, or molasses, or fish, or milk or nuts, or any one of a long list of foods, is consumed annually in the United States as human food?" no accurate answer could be given. Yet the question is obviously a fair one, and one which somebody in the nation ought to be able to answer with a considerable degree of accuracy.⁶

The food crisis which was brought upon us by the War made an answer to this question imperative. It would be out of reason to yield to the demands of our overseas allies for food without first knowing how

⁶ Pearl, *The Nation's Food*, p. 209.

much we had at home and at what rate it was eaten. The food survey which was set on foot by the government in the summer of 1917 tried to answer these questions as well as the ones of food substitutes and of food holdings. The exact data of this survey were of interest for the moment only and need not detain us here. The methods, too, were elaborate and lack of space forbids their description in this place. Suffice it to say that at this time, for the only occasion in our history, we knew with regard to twenty-six staple foods the exact condition of our national larder.

The "crop estimates" which are made each season by the Federal Department of Agriculture afford a rough basis for a food survey and are regularly used for this purpose. These estimates are a census of crops and live stock taken at set times and, having the backing of public authority, are of course official and trustworthy. The amount of the national store may not be learned from these periodic "estimates," however, until after many drawbacks and reserves have been made. Much waste, for example, takes place between the farm and the table—as much, Dr. Pearl estimates, as equals 16 per cent of the total food supply.⁷ Again, large amounts of possible human food are fed to farm animals. Pearl shows here, upon this point, that more of the total nutrients of the year's harvest of crops goes to animals than to man.⁸ And, finally, much of the annual farm output is a "hold over" until the next year for seed and safety purposes.

Crude as the crop estimates are for food survey purposes, they serve in spite of this many useful purposes, as an index to food supply. Popular comfort, to mention

⁷ Pearl, *The Nation's Food*, p. 248.

⁸ *Ibid.*, p. 261.

only the least of these, is obtained from the newspaper reports that "our farm yields this year are equal to the average." This means that for corn there must be a yield of three billion bushels, and for wheat a near billion. Food will not be scarce, our experience tells us, with such huge crops as these. Thanksgiving Day is in honor of such an outcome.

The War gave birth to still another food survey. This is the one by Dr. Pearl, who says in giving it to the public:

This study grew out of the author's work as Chief of the Statistical Division of the United States Food Administration from June 11, 1917, to March 1, 1919. As time passed . . . it was seen that we had better material than had ever been available before on which to attempt a thorough and searching statistical survey of the food resources and food consumption of the United States.⁹

The survey itself which makes up Dr. Pearl's treatise, *The Nation's Food*, is most complete. It deals with more than fifty foods, and thus all of them are taken up except those of rare use. It shows the amounts of food in our national larder by twelve-month periods for a series of seven years (1911-1918), thus giving the averages of food yields and of food uses for no small part of a decade. It gives net food yields and uses, too, since wastes and drawbacks are taken out, and the actual sums of food elements—proteins, carbohydrates, and fats—alone are given. The data used in this survey for the primary foods were the official crop estimates already told about, and for the secondary foods, the various reports and trade papers of the trades dealing in foods. The sources made use of, therefore, were of a broad and adequate sort.

⁹ *The Nation's Food*, Preface.

A survey of this type has many great merits. The showing of food yields and food uses by means of the food elements themselves goes to the heart of a food survey at once. The actual food as to its amounts and rates of use is what we wish to know about in a canvass of this sort, and not food-bearers and raw food materials. Besides, by stripping all foods to their elements, the total amount may be shown within a space which the eye may grasp as in the following table:

FIGURE 5.—TOTAL AVERAGE ANNUAL YIELD OF FOOD ELEMENTS IN THIS COUNTRY DURING A SEVEN-YEAR PERIOD (1911-1918)

Food group	Total protein average in met- ric tons during seven years	Carbohydrates (same as pro- tein)	Fats (same as protein)	Calories (000,000 omitted)
Grains	1,698,456	11,759,884	246,055	57,481,097
Meats	1,913,773	4,945	3,166,785	33,661,696
Dairy Products	755,861	923,829	1,427,736	20,181,684
Poultry, eggs.	247,789		174,502	7,116,816
Vegetables ...	218,382	1,466,800	21,775	6,544,917
Fish	80,852		17,863	2,637,606
Oils and nuts..	44,559	33,075	668,325	2,488,099
Fruits	19,362	556,184	13,965	515,061
Sugars	454	1,695,489		
Total....	4,079,488	16,340,206	5,727,006	137,603,655

* *The Nation's Food*, p. 2.

Something like 26,086,700 metric tons (a metric ton = 2204.6 lbs.) is shown by this table to be our annual average yield of food. Roundly, this gives a per capita yield of food to the people of our nation in excess of two and three tenths metric tons per year—a supply far within the limits of adequacy. "It is evident," says the author of the survey, "that there is as yet no occasion for worry along Malthusian lines in this country so far as subsistence is concerned."¹⁰

¹⁰ *The Nation's Food*, p. 81.

THE HOLDINGS OF THE FOOD SUPPLY

The questions, "Who holds the title to our food?" and "Where is it held?" are logical mates with the one just answered, "How much do we have?" These queries are not merely of curious interest either, since here, again, class rivalry for food supplies stirs a wide public interest. The middlemen are broadly accused of hoarding food so as to make natural scarcity still more scarce and thus raise the prices of their goods. Even the mere storing of food by warehousemen has caused bitter feeling, and in not a few states, therefore, laws have been passed which put a limit to the time that food may be stored in warehouses. Again, it is the food-growing farmer who urges his claim to have the right to control food. The milk "strikes" among dairymen, which have been so common in recent years, are extreme means which farmers have used in the support of this claim. Let us notice, first, the classes in whose hands food is held, and then, briefly, the flow of food from one class to another.

The travel story of the typical food is, in short, that it passes on the way to market from the hands of the farmer food-grower to those of some one or another of several kinds of middlemen. It passes on the basis of a change of title, too, since the farmer is no longer the owner of his product after a transfer is made to the middleman. The "middleman arch," as the route is called over which food passes on the way from the farm to the city, is made up of local shippers, commission men, jobbers, and retailers, and food normally flows through these classes in the order given. Most of the aids to the food flow, storages, mills, canneries, shipping agencies, stockyards, etc., are owned by the middlemen also, and these must

be used to the limits of capacity to give the largest profits to their owners. Agencies of these sorts, as will be shown later, are at most times the dwelling places of our visible supply of food.

Farmers are sometimes thought to be the losers by turning their products over to middlemen in this way. They themselves, it is often assumed, should hold their foodstuffs until a better price can be had for them than is true at harvest time. Some western states, indeed, furnish state-owned warehouses and even flour mills for the use of farmers, and sometimes, also, these facilities are secured by coöperation among the farmers themselves. But it is not certain that the farmer benefits from being himself the storer of his crops. The shrinkage and waste, and the storage and interest costs of holding foodstuffs are large, and economists have shown many times that the farmer generally loses by having to pay them.¹¹ The speculative risk is also very great, and the farmer is not well prepared to meet this.

The final owners of the food, the consumers—though these are the ones for whom it is grown—do not rival the farmers and middlemen for its control. These generally buy in small amounts from day to day and have no means for storing or otherwise caring for food. The War food survey, told about on an earlier page, divided its great task into three main parts. One of these was the study of the stocks of food remaining in the hands of farmers, and this canvass was given to the Federal Bureau of Crop Estimates. The second had to do with the stocks in the hands of middlemen—the commercial supply—as it is called. This census was taken by the Federal

¹¹ J. E. Pope, *Quarterly Journal of Economics*, Vol. XXX, pp. 805-831.

Bureau of Markets. Finally, the Federal States Relations Service was asked to find out by a house-to-house canvass the stocks held in the households of consumers. Little was obtained along this last line, however, either because the task was hard or because very trifling stocks only were found. On the other hand, the volume found in the hands of the other two classes was often reported and was, of course, huge in amount. The simple fact is that modern dwelling houses are not built in a way to permit the long-time keeping of food and therefore but small amounts are held by consumers.

The food holdings of farmers and of middlemen, then, divide our national loaf. The share held by each at various times may be seen from the following table given out by the Department of Agriculture, which tries to show how rapidly after harvest each crop is turned over by the farmer to the middleman.

WHEN FARMERS SELL THEIR CROPS

FIGURE 6.—THE RELATIVE AVERAGE MONTHLY MOVEMENT FROM FARMS, EXPRESSED IN PERCENTAGE OF THE YEAR'S TOTAL MOVEMENT; THE AVERAGES ARE MOSTLY SIX-YEAR AVERAGES, 1910-1916.*

Month	Wheat	Corn	Oats	Bar- ley	Rye	Pota- toes	Eggs	Live Stock	Live Stock P'duce	All Sales
July	12.4	4.7	8.0	6.6	5.6	6.1	8.7	5.3	8.5	6.4
Aug.	13.5	6.1	17.1	12.7	13.6	8.7	7.6	5.5	8.0	6.9
Sept.	15.5	6.1	13.4	18.4	16.6	14.1	5.4	8.7	7.9	10.1
Oct.	13.8	6.3	11.3	15.6	15.5	24.5	5.3	11.8	8.3	12.6
Nov.	10.0	11.4	7.7	10.6	12.6	11.6	3.9	9.8	8.3	11.7
Dec.	8.2	15.9	8.0	8.7	9.8	5.3	3.3	9.5	8.3	10.5
Jan.	6.1	13.8	7.0	6.7	6.9	4.0	3.3	10.3	7.5	8.5
Feb.	5.3	10.8	6.7	5.9	6.6	4.0	4.7	8.1	7.6	6.8
Mar.	4.0	6.7	5.0	4.4	4.2	6.4	12.8	9.2	8.1	7.4
Apr.	3.6	5.1	4.2	2.8	3.0	6.5	16.8	8.2	8.9	6.9
May	3.0	6.8	5.7	3.0	2.6	4.9	15.3	6.2	9.3	6.1
June	3.7	6.3	5.9	4.6	3.0	3.9	11.9	7.4	9.6	6.1
Totals	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* *Year-Book Department of Agriculture, 1918, Appendix.*

A mere glance at this table shows that the process of

farm-product transfer is a rapid one. Save in the case of oats, more than half of all field crops are sold at harvest time. Live-stock products are less regular in their time of sale, but, in general, more of everything is sold in the fall than at any other time. Indeed, by the time the year is half gone, the middleman has come to own nearly two thirds of the products. It is clear, therefore, that members of the middleman class are the chief holders and owners of our foodstuffs during the most of the time.

FOOD LOCATION

The places of location of our food supplies are not so easily made out as are the classes of middlemen who own them. Good means for shipping food keeps much of it in movement all the time. Shipping facilities here are like the services to our body economy of arteries and veins. Indeed, the post-war famines in Russia and elsewhere have been caused no less by lack of railroads than by lack of harvests. No data can be had, therefore, which will tell where all parts of our food supply may be found at any given time. In spite of this, however, some places are noted as food centers, and some account may be given of this fact.

As we have just seen in the table on another page, less than half of the foodstuffs stay with the farmer after the third or fourth month following harvest time has elapsed. It is in the cities, then, that the stores of food not in transit are to be found. Indeed, one would expect this to be the case, since in the cities the great store buildings, elevators, stockyards, flour mills, and warehouses are to be found. All cities have these devices as aids in feeding their own citizens, a few, further, have these means for the purpose of shipping foods to other places. Chicago, for

example, handles food in both ways. It has a large local use for food, and is also a shipping point. No place in the world exceeds it as a food center. Each year, a half billion bushels of grain come to its mills and elevators, more than sixteen million head of live stock to its yards, and the "produce" receipts, in addition, are the second largest of the tonnages which come to the city. The food-making facilities of the city are among its show places. Visitors to Chicago look upon the grain exchanges, stockyards, packing plants, and South Water Street produce houses as among the wonders of the city which no one should fail to see. The city is in fact the great central market for the whole country if not for the world.

New York City, besides feeding a large local body, has also an especial outside food line. This is the large foreign trade in food which centers here. Most of the breadstuffs which are shipped from our country go from New York City and it is also the chief receiving center for our two great food imports—sugar and coffee.

A recent summing up of the food dealings of this city is found in the following showing:

New York must have food: (*a*) to supply a resident population of 5,000,000 people; (*b*) for a transient and commuting population of many thousands daily; (*c*) for the provisioning of outgoing trains and steamships; (*d*) to export to other cities, towns, and countries.¹²

Other cities there are which are less well known for all sorts of food than the two about which we have just told. These cities have local specialties. Thus Baltimore is first in the handling of canned goods, Detroit in beans, Minneapolis in flour, Battle Creek in breakfast foods, and Los

¹² Report of the Mayor's Marketing Commission, 1913, p. 10.

Angeles in citrous fruits. In a broad way, it may be said that most foods have special cities in which they center. These are the chief location places for these foods. Cities of this sort may be told in general by an especial earmark. This is the fact that prices for the foods in question are quoted from these cities by the press, and, further, that all trade news in general about these foods is secured here.

CHAPTER IV

FOOD SUPPLY RESOURCES

THE nature of the demand for food has now been shown in brief. Besides, we have seen that this demand is mainly for a few great foods and for some others of second-rate use. It is now left us to take up the question of the supply. Here we are met at once by the great fact of natural environment and its rigid control. Much as the skill of man has brought out farming and trading methods, he is at bottom merely an adapter of nature's gifts and forces. The supply of food in the end, therefore, rests wholly upon natural conditions. Large amounts of food materials cannot be brought to exist unless the decrees of nature in respect to climate, rainfall, and soil fertility are exactly taken into account.

The sixty-three prime food-bearers, which Finch and Baker¹ take note of, together with all their subclasses, needs each its own special gift of moisture, heat, soil, and growth period, in order to return the best in products. No plant wizard has been able thus far to change the fact that the minimum needs of crops of every sort are, roughly, 90 days between killing frosts, 20 inches of rainfall, and 60° of warmth between seed time and harvest, together with enough plant food in the soil for growth.

The vast and costly agencies of trade which we see

¹ Finch and Baker, *The Geography of the World's Agriculture*, Bureau of Publications, Washington, D. C.

on all sides, and also all trade methods and efforts are a fine tribute to the iron decrees of environment in the getting of foodstuffs. None of these agencies or efforts would be needed, of course, if plants and animals could be grown at will in every place. No modern economic fact is more easily seen, however, than the one that certain foods are tending to become more and more the universal diet of the whole world. On the other hand, the growing of these foods becomes more and more the closely localized output of certain special places.

The current talk of the day, indeed, reflects this control of nature over plant and animal production. The familiar terms "corn belt," "citrous fruit region," "spring wheat area," "cotton belt," and many others bring up at once to our minds regions as fixed as are the areas fully marked off by set borders. One may easily show, in fact, that it is the enmity of these food-yielding zones to any but their own special products, coupled with the great lack of life resources for food plants everywhere, which gives the race its big task. The unhappy way in which nature has spread these elements of food supply about, and the general scarcity of all of them gives point to the Edenic curse, that "ye shall earn your bread by the sweat of your brow." Some one has wittily said that in free air, free water, and free sunlight, nature has given man just enough to hold his interest, but for everything else he gets he must pay the full price.

Taking up now the food resources of our own country so far as they are fixed by the rulings of nature, we find that there is much to be said about the terms of these decrees. Life conditions, as these terms are called, are found to be, when looked into, such things as native animal and plant life, contour of country, climate, soils,

temperature, and water supply. All of these will now be told about in the order named.

PLANT AND ANIMAL MIGRANTS

The country which now makes up the United States seems to have been badly supplied by nature with plants and animals fitted for farm uses. A few types of plant growth, like the potato and corn, a few species of wild animals—only one or two of which were capable of regular and steady use by man—and the list of native live stock and crops is at an end. Scientists explain this by telling us that our present-day plant and animal food-bearers of the farm and garden are the outgrowths in every case of long years of careful selection and breeding. No early natives, they say, lived here who had either the patience or the insight with which to do work of this sort.

The growth of food, then, by “the conscious and systematic control of the biological processes of reproduction among plants and animals”—the method of farming—came at a later date. In fact, this began only with the settling of the country by white settlers—mostly Englishmen—and was of the strictly English type. As good luck would have it, the men who thus became the forerunners of the farm class which was to develop food production in our country were themselves members of the ablest farming people in the world.

The English farmer had not been caught by the rigid plan of the feudal scheme of crop rotation as was true of other farmers wherever feudalism prevailed. Neither had he felt the handicap of the strip-sized farms which has held back European farming until our own time. The iron frame of this feudal rotation called for

a sameness of tillage and crops from year to year which killed all new ideas in the art, and kept the farmer a peasant for good. "The man with the hoe"—of whom we have heard so much in recent years—is the natural follower of this peasant type. Further, through being set off by seas and straits, the English farmer had escaped the brutal wars which so often swept over the rest of Christendom, putting a stop to the farmer's work and robbing him of his gains. A natural growth in farm methods during many centuries was therefore open to the islander. We find nowhere else, as a result, such orderly progress of skill in breeding, in the use of drainage, in the handling of manures and in the growing of crops, as is found among the English.

The wheat fields of England were looked to by the paternal emperors of Rome for the supplies of grain with which to support their partisans, and these fields were still a chief source of this grain to wheat-using peoples until a century ago. English wool in the Middle Ages made up the world's supply of this commodity—a fact of such great merit that its tradition is still kept in mind by formal method. The method indeed is that of using a sack of wool as the cushion for the seat of the British Lord Chancellor in the House of Lords. The English animal breeders took on an early rank in the agriculture of this people. Their skill is well set forth, indeed, in the names of nearly all of the leading breeds of live stock the world over, since these breeds in general reflect the names of the English shires in which they had their origin. We have, therefore, the familiar titles of Durham, Shropshire, Chester, Devon, Leicestershire, and the many others given to live stock as proof of the English skill. The devotion of the English nobility to farming

almost until our own time is a fact well known to history. The turnip crop rotation urged by Lord Townsend, the drainage successes of the Bedfords, and the farming of King George III are all classic cases of this lordly interest in farming with which the booklore of this art in England abounds. Naturally, with all this behind him the English colonist on this side of the water could scarcely help running true to type.

Indeed, our Atlantic forbears quickly showed a marked drift toward the phases of food growing which have to do with the better breeding of animals and plants and with the arts of soil handling. The many-sided Washington showed scarcely more success as a warrior than as a farmer, and his neighbor Jefferson turned aside from the cares of political life to compute the proper curve for the moldboard of a plow—his model still serving as the pattern after which these are designed. The love of this third President for farming is further shown by the fact of his being the first to use a threshing machine in this country. The huge farm operations of Webster at Marshfield and the breeding successes of Henry Clay at Ashland are further instances to the point. Even if it may not be said that these men gave much of permanent uplift to farming, nevertheless, their efforts are typical of the style of interest which has prevailed widely among our people in bettering the ways of growing food.

Live stock and crops then are in the main migrants, like their growers and users from some overseas country—chiefly England. Like their human keepers, too, they had a new world into which to fit themselves and to make for themselves a home. Swine had to learn the use of a new food—corn. It was to be an epoch-making lesson too, since the bacon type of hog which finished on the nuts

and grains of old Albion was to become the fat-pork type of the new "corn belt." The Merino was to prove its worth upon the rough and rocky sheep ranches of the west, while the Shropshire became the type for the eastern farm. Silk-worm growing had to be given up though tried in many places. So, too, the widespread culture of flax and the sugar beet. All of these adventures in farming and many more were the subjects of trials and tests, and for the most part were done in a haphazard fashion. It is only lately that the government has gone about the putting of plant and animal colonists in their right places after the way of a system.

SHAPE AND SURFACE CONDITIONS

The well-known shape of our country is that of a rectangle with its long sides parallel east and west with the great circles of the globe. In general, this is of merit to the copious growing of food, since it brings the largest possible area of the country's surface under similar conditions of farm methods and crops. A north and south rectangle running side by side with the meridian lines is the one other notable form which a country may have, and this brings parts of all the zones within its borders. A shoe-string-shaped country like Egypt is a good example of this. A strip of soil here stretches up and down the Nile for a thousand miles or more, but on either side for only a few miles. It gives many different products, naturally, as the result of lying in so many climates, but each of these products needs its own style of farming. No huge output of foods can take place with such a lack of unity in farm aims, farm methods, and farm information as would prevail here. Our country, too, is wholly within the great food-yielding temperate zone, and, as good luck



FIGURE 7

would have it, is in the southern half of this great belt. Its usual winds are the well-known "westerlies," though these are side-tracked locally into many side currents through the effects of mountain ranges and bodies of water.

The surface area of our country from the standpoint of farm yield may well be looked upon as split into almost equal halves. The 100th meridian passing north and south through western Kansas and Nebraska is the median line. West of this noted 100th is the Cordillerian Plateau reaching thence to the "coast." The mountains of the Rocky and Coast ranges rise here, sometimes to the height of 14,000 feet above sea level, and all of this great plateau has a height of more than 2,000 feet. The half which reaches eastward from this 100th line to the Atlantic, on the other hand, is a great lowland. This is, in the main, the vast Mississippi Valley and may properly be looked upon as a great low plain broken only by the narrow strips of the Allegheny and the Ozark highlands. At best, these are but little higher than the lowest parts of the western plateau.

This low plain or eastern half of our country was at first covered almost from border to border with a splendid forest of many kinds of trees. Only on its western edge was the case otherwise. Here along this entire western margin were the prairie plains, the grass-grown surface of which broke sharply with the near-by forests. In one or two places, indeed, as in the case of the region between the Ohio River and the Great Lakes, the forests gave way to the prairie which here reach far to the eastward. Much in contrast with this Mississippi Valley setting is that of the great western plateau which makes up our other half. In this region are the great barren deserts and

the treeless plateau plains. The first of these lie between the two huge parallel mountain ranges of this plateau, while the second clings to the eastern side of the Rockies along the whole length of their course. The forests of the west thus broken into by deserts and plains are less widespread than were those of the eastern lowlands. Some of the trees here, however, namely, those of the red-wood forests of the Pacific slope, are the most princely of our entire continent.

The "continental divide," as the watershed of the country is called, which parts the east from the west, is the best known and most widely accepted partition which separates our country into parts. The Rocky Mountain range, which makes up this watershed and separates the Pacific-flowing rivers from those of the Atlantic, is but a trifle to one side of the 100th line just spoken of. East of this chain is the great Mississippi River with its outlet in the Gulf of Mexico draining at an easy estimate more than a third of the national domain. To the northward and eastward of this are the Great Lakes with their outlet through the St. Lawrence, while the whole Gulf and Atlantic seaboard secure drainage from many smaller rivers. West of the Rockies, a few great rivers flow into the Pacific Ocean or its inlets, and are enough to furnish drainage for this rather arid region. From the trade point of view, the Mississippi system is not equaled by any other waterway in the world for the ease with which it allows shipping to enter a vast farming, mining, and industrial region.

CLIMATE

No other life condition has more force in its effects upon food yield than climate. The fatal 100th meridian,

which separates the dry region from the wet in our country, marks a boundary which is as truly a partition as any laid down by the chain and compass. On the one side is the fruitful earth of farm and plants, on the other are the deserts and dry plains. By climate, we mean in general the various air changes which take place in a country, the changes in heat and cold, and the facts of air moisture or dryness. Climate it is which has capped with ice the polar regions of the earth and given a frigid state so that farming cannot be carried on. It has made the tropical belt around the middle of the globe hot beyond one's strength to bear. It has also given here an output of pests and diseases which makes plant and animal growing by farm methods fairly difficult.

Climates are very much changed by bodies of water and by mountain ranges so that the isothermal lines are turned from the straight lines across the continent, which they would otherwise follow, into many devious windings. Great plains, too, are climate factors. Their huge area gives free scope to the sweeping of winds from every quarter; the quick changes, too, of heat and cold on these vast areas cause fierce storms. The Chinook winds on the mountains and plains of the northwest as examples of air movements take away the snows of midwinter by absorption—at times with amazing quickness. This gives a season of springtime which makes winter cattle-grazing possible even in the high latitudes of Montana. On the other hand, no summer passes but that the cyclone terror of the middle Mississippi Valley tears down crops and farm buildings and makes both the life and the business of the farmer a thing of doubt. The power to allay cold possessed by Lake Michigan, across the surface of which the regular winds from the west blow, causes the Michigan

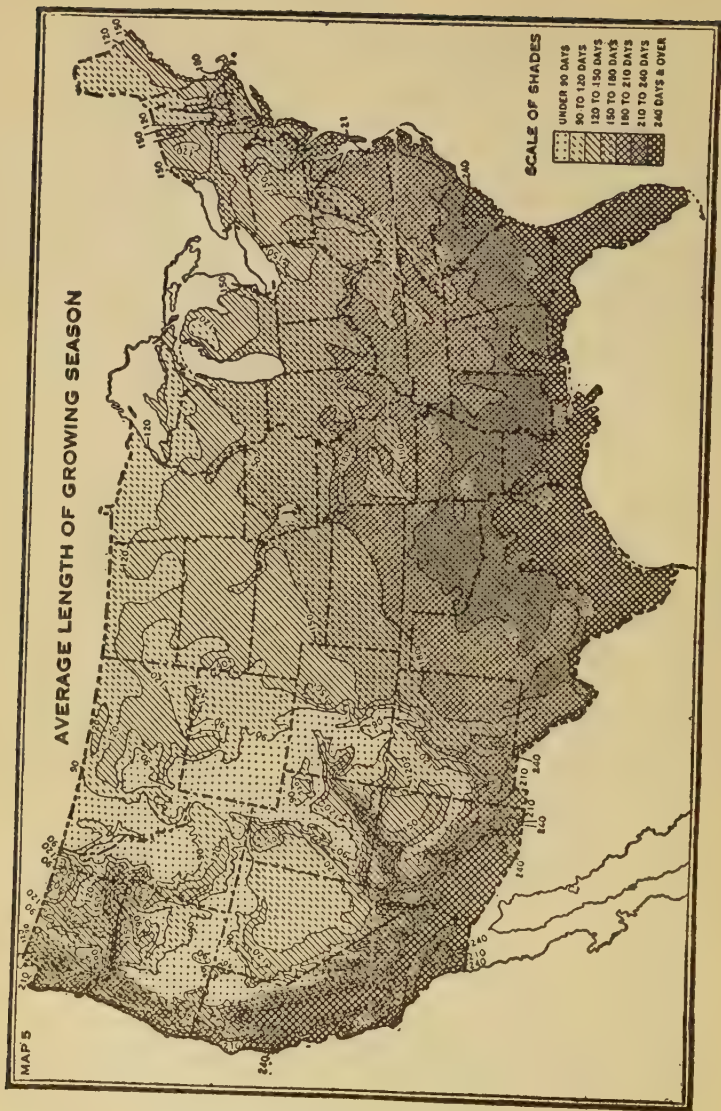


FIGURE 8

shore of this lake to be known as the "peach belt." This strip of land, seldom anywhere more than ten miles wide, runs almost the whole length of this coast and has an average rise and fall of heat like that of regions several hundred miles further south. The well-known effects of the Japan stream in the North Pacific by which the entire "coast," as it is called, is warmed makes another case of the effect of climate. Farming may even be carried on far up in Alaska as the result of the way in which casual forces change the orderly workings of nature in the matter of climate.

Some further freakish cases of climates, having to do with crop yields, which are caused by mountain ranges or bodies of water, are those of the cloudless days which prevail over the plain and plateau states. The rarely broken days of sunshine in these regions makes living here more joyful. They also hasten the growth of crops so that a less number of days are needed here for making a crop than those which must be had in more humid regions. The fixed periods of rain and of dry weather which are found in some "coast" states gives the farmer a climate which he can depend on as firmly as he relies upon changing seasons. In many places in these states where grain is grown, it need not be stored in order to keep it from the elements but may be left wholly without shelter in the fields, thus cutting down the costs of farming by a no small amount. Our country as a whole, luckily, is within the food-yielding portion of the globe so far as climate has to do with it. Even that part of the great northwest which has the lowest depths of cold anywhere to be found within our borders is saved from having a climate which forbids crops by the fact that the air here is of extreme dryness.

The climate of the United States from the point of view of food growth and in respect to cold and heat has been fully mapped out. It is usually looked upon as having two belts, each bounded on north and south by lines which reach from ocean to ocean. Since these are the well-known isothermal lines, no further account of them need be given here, except to say that, reading from above down, the two belts have normal temperatures each of 67° and 77° , respectively. The Ohio River is in general the natural median line between these two belts.

The item of frost is also a limiting factor in agriculture, at least in respect to the growth of plants. In this regard, the regions, generally speaking, of the whole country which fail most in having the needed periods of 90 days between killing frosts are the great plateaus and the Great Basin of the western mountains. The northern part of the United States elsewhere from the Ohio River up is, in general, frost-free from 90 to 150 days. Likewise, the southern part is very easily beyond frost danger for almost any crop which it is desired to raise. (See map, Figure 8.)

RAINFALL

Taking the view as a true one that the scarce factor in any situation is the limiting or pace-setting factor, then in any sort of American crop farming, rainfall fills this crucial place. The needed 30 inches of rainfall are not so prevalent in this country as are the fertile soils and the frost-free lands. Rainfall depth fails to average this much the country over, and surely it is also true that the spread is far from even. The extreme limits of the national domain have, as it happens, the largest total rainfall of any parts of our territory—that on the Oregon coast equaling

from 60 to 70 inches each year, while that of the Gulf states is not much less. The Great Basin, or great desert of the west, has the least moisture, the rainfall here not giving more in general than 10 or less inches per year. On the other hand, the whole Mississippi Valley and thence east to the coast is freely supplied with an annual rainfall of some 30 inches or more. Man has been unable to change in a basal way nature's method of allotting moisture, although in all ages efforts have been made to control this great boon. Some of these attempts, such as setting aside "days of prayer" for rain and "shooting the clouds," have been kept up doggedly and along the same lines from age to age by many different races of people. Needless to say, all have been equally fruitless.

The allotment of rain through the seasons is of scarcely less note than the total amount of annual downfall. Here Jupiter Pluvius is most given to whims; to no region does he give fixed periods of rainfall and of drought save only to that of the Coast. The great "corn belt" gets over half of its moisture during the growing season, while 84 per cent of the annual downfall of eastern Colorado comes during this same critical time. Lucky it is that this is true for this region, since the total downpour here is only fifteen inches per year.

Helping out the general scant supply of moisture given by rain is the effect of the general humidity of the air. The nightly thickening of a "dew point" charged air may go far toward taking the place of the needed rain in the support of plant and animal growth. Here the great plains are most noteworthy, since an average humidity of from 70 to 80 per cent spreads over this great region.

SOIL

The soil is the peculiar element of the farmer as the sea is the domain of the sailor. Soil is set off from mere land through the fact that land has many other uses than that of giving plant food with which to grow farm products. Soil, on the other hand, is at bottom simply plant food. Land may be used, for example, for building sites, for burial grounds, for parks, and pleasure places; or, as Emerson says, for merely "holding the earth together." Soil is of necessity very much more limited in amount than land and has only one main purpose, namely, that of growing crops. In a study of food supply, the nature and allotment of soils is of chief note, and in the order of their amount and richness, they will now be dealt with.

The soils of the United States have been the subject of much study and comment ever since civilized life began here. Their systematic study through methods of survey reaches back not more than a few decades, however, since worthy methods of research have only lately been developed. Real information with regard to our soil wealth, therefore, is not as common as could be wished.

The very magnitude of the task by which the soils of so large a country as ours should be graded to a standard has hindered the quick doing of the thing. In spite of this, however, the discovery in the main of the chief soils of the country has now been done. The results of many soil surveys enable us to say now, with some degree of accuracy, where soils may be found, and soil studies permit us to tell their worth as plant food. Going immediately to the data given us by soil surveys, we may say at once that the areas of our country known as the prairies furnish

by far the best soils for food growth. The history of these soils and their chemical and physical make-up give us, indeed, a very vital glimpse into the future of our food supply, and should merit our closest study were space more ample. The regions thus named—"the prairies"—reach in length from our northern border to our southern. In fact, they reach from the Arctic circle to the highlands of Mexico and make up nearly a third of the area of the whole continent. In width, they spread roughly from the Rocky Mountains to the Mississippi River, overlapping this watercourse deeply in the region between the Great Lakes and the Ohio. On the other hand, they fall short of reaching the river along the lower courses of the Father of Waters.

The whole of this great area is, in general, fertile soil, and especially such is the case with that portion known as "the great black earth belt of America." This "belt" is thought by some to make up an extent of fertile land unequalled in area by any other region in the world. The black earth belt stretches along the west side of the Mississippi for the whole length of this river and has an average width of some five hundred miles. On the eastern side of the Mississippi, too, in the region south of the Great Lakes, an offshoot is to be found which reaches almost to the Alleghenies. The belt has been shown in graphic form, sometimes, by giving this eastward spur the place which the heel has on the human foot. It is really a ballet dancer's foot, however, since the toe rests upon Mexico, while the ankle terminates in Canada. Professor N. P. Shaler says of this soil:

The grasses of the prairie district, belonging to the same group of plants as our ordinary small grains, appropriate mineral matter of essentially the same description as is re-

SOIL REGIONS

PREPARED BY
C. F. MARBUT
ASSOCIATES
INC.
SOIL SURVEY

LIGHT COLORED SOILS

- 5300 Brown, gravelly and stony loam
- 5301 English to brownish silt loam
- 5302 Light brown, predominantly silty
- 5303 Loam from limestone rock
- 5304 Fine to very fine sandy loam
- 5305 Fine to brown silt
- 5306 Heavy clay subsoil
- 5307 Brown silt loam
- 5308 Yellowish to reddish silt loam often stony
- 5309 Yellowish, silty, heavy to stony loam from sandstone
- 5310 Reddish sandy and clay loam
- 5311 Yellowish sandy loam
- 5312 Yellowish silt loam
- 5313 Yellow brown silt
- 5314 Red brown silt
- 5315 Light colored silt
- 5316 Brown subsoil

DARK COLORED SOILS

- 5317 Black silt
- 5318 Highly calc. subsoil
- 5319 Very dark brown silt
- 5320 Dark chocolate brown silt
- 5321 Reddish sandy subsoil
- 5322 Reddish brown silt
- 5323 Dark brown loam
- 5324 Very brown heavy subsoil
- 5325 Clay subsoil
- 5326 Black clay & clay loam from nearly limestone
- 5327 Shallow, stony silt
- 5328 Oxydized brown silt
- 5329 Oxydized brown silt
- 5330 Medium dark yellowish brown
- 5331 Reddish brown subsoil

OTHER SOILS

- 5332 Brown silt of the
- 5333 Gray or brown
- 5334 Silt of sand and gravel
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FIGURE 9

quired for our most important field crops. As the products of these grasses are not taken away, but are annually restored to the soil, they have aided in preparing the ground for the service of man. Notwithstanding a tendency to depreciation, the prairie district is to be reckoned as the largest field of high-grade soils which is in the possession of our race.

This black earth belt has the soil which gives us the spring wheat belt of the northwest, the winter wheat region of the southwest, and the corn, hog, and wheat area between. It has been well said that as a substitute for Darwin's earthworm in soil pulverization, the black earth belt has had the prairie dog and the gopher. Curiously enough, this soil was long avoided by early settlers, since it was thought that where timber failed to grow there was little hope of suitable fertility in the soil. On the other hand, once this belief had given way to the correct one, these lands became the most sought for of any in the country. The farmers have found, indeed, that the prairie soil, owing to its great fertility, its general level evenness, and its ease of tillage with machinery, makes the ideal sort of farm.

East of the prairies and reaching to the Atlantic Ocean, soils may in general be looked upon as forming two groups. To the north of the cotton states, on both sides of the Allegheny range, a fairly fertile area is to be found. The early timber covering of this region did not leave, however, by many times as rich an earth covering as did the grass and other plant growths of the prairie. The soil of the Gulf and South Atlantic states is an aged soil. Not only has this soil had a lengthy tillage from man, as the result of being early settled, but, from the point of view of geology, it is an old soil. The open winters, too, of the south and the heavy rainfalls of this section

have caused severe "weathering" of the soil and other soil wears. This is the area in which commercial fertilizers have their chief sale in this country.

West of the Rocky Mountains to the Coast the soil seems to resemble in the main that of the timbered region already spoken of in the northeast. This soil, too, was timbered and as a result, left an earth mat of timber remains upon which crops are now grown. Reaching from the Mexican border northward right through the middle of this plateau region is the great American desert which makes the most notable area of sterile land to be found anywhere within our domain. Such soils in fact as have plant food in this region must be dealt with by irrigation, since this is also a dry-air section. On the Coast, in the deltas of the California River system and in that of the Columbia to the north, are rich alluvial soils which offer a marked contrast to most of the other soils found in this great area. The plateaus and lowlands of the Rocky Mountains, also, throughout the entire length of this range seem to give a soil which is very high in fertility.

Some soils of rare fertility and renown are the limestone soils of the blue grass region in Kentucky. Tillage here has been carried on for more than a hundred years, but the soils still show much vigor. Other famous soils are those of the alluvial type found in the river bottoms of the Mississippi, the Connecticut, and the Sacramento, and many other rivers furnish examples of these very rich areas. Small and nameless pockets of extremely rich soils are found scattered about with no apparent design in all parts of the national domain. In the dry regions of the west, rare soils of this sort are often found. No fertility has ever been lost to these soils through leaching, so that their make-up of phosphates, nitrates, and other

desired elements reach a high degree of richness. Some additions to our soil treasures may be made in the future by the drainage of swamps or by the use of irrigation. But, broadly speaking, the spread of soil which we now have must remain forever much as nature gave it to us.

FARMING REGIONS

The food resources of a country are but little more than suggested, indeed, only hinted at, by such an account as the foregoing. Something more than the separate, distinct life conditions on which crops and live stock depend must be known in order to see clearly the future of our food supply. The yield of farm products, in other words, cannot be told by merely telling of the soil plant food by itself, nor of the rainfall alone, nor of the freedom from frost. Too often, in fact, illusions as to farm chances have come about through the stressing up of one of these factors and the shunning of the others. Some areas very short in soil fertility, but frost-free and well-watered, may be shown to give a good farm response. On the other hand, it is only too well known that huge areas of the best soils give but little or no crop yield through the natural lack of moisture.

We have, then, for our present task the finding out of the areas in our country which have the best unions of these factors of soil and climate. We must, in a word, discover the regions which have more than 20 inches of rainfall, more than 90 days of growing season, and a fertile soil, besides. This we must do in order to be able to tell the real outlook for food output which is the heritage of our nation. Several ways present themselves for the doing of this task, but not all of equal merit.

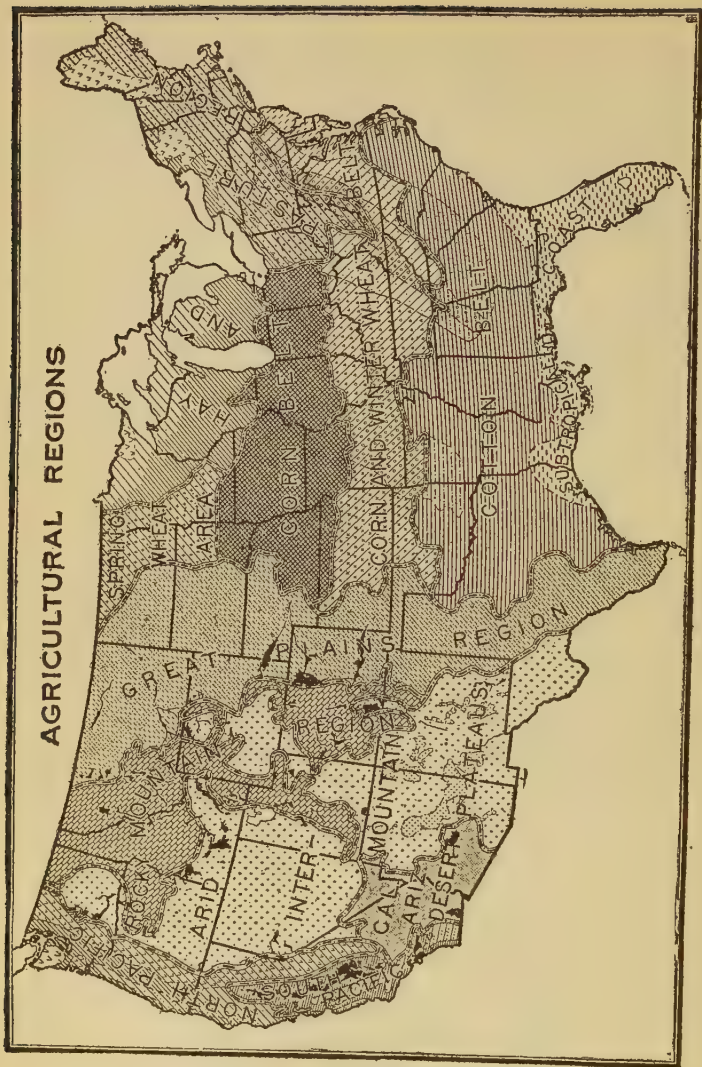


FIGURE 10

The matching with the geographer's help of the life conditions just told about, until the most perfect grouping is found, is one of these ways. The discovery of the places having plenty of the life conditions which our major crops demand is another method. However, a better way than either of these can be made use of.

The present seats of our highest yielding farms should, indeed, show us where nature is at her prime, since farms of this sort are only possible where nature offers noble gifts. The discovery of these farms is in truth a matter of little hardship. America is now an old settled country, and her means for farming have long since been sounded out. Indeed, census and crop reports tell with certainty where our various crops are grown. The entire country is easily separated, therefore, into sections on the basis of the types of farms found in these sections. Specialized farm regions have come about, in fact, but little less quickly than have specialized towns and cities which are now everywhere so common.

One of the best-known studies of the growth of specialized farm regions shows: (1) that the area out of which New York and New England are made is given up to dairy farming and truck growing; (2) that the states lying along our northern border from the Great Lakes to the "Rockies" specialize in spring wheat; (3) that the Gulf States and parts of near-by states are given to cotton raising; (4) lying between these last two regions, and reaching from the Atlantic Ocean to the 100th meridian, is the corn, winter wheat, and swine belt; (5) the wool and live stock area stretches along the entire length of the Rocky Mountains, and reaches from the eastern slope of this range to the western side of the great basin; and (6) the fruit and grain belt of the Pacific Coast absorbs

the rest of our domain. Surely, when nature's responses in farm products may be charted out with this degree of fixity, the way has been greatly cleared for showing the places of the best farms and the best unions of natural conditions.

The manner in which the farm advance over our continent took place also teaches many lessons as to the way in which our best mated climates, soils, and rainfalls were found. Broadly speaking, land-seekers from the older colonies poured into the Mississippi Valley during the first quarter of the last century; at first, through the Cumberland Gap across the Alleghenies, thence by way of the Ohio River waterway until the whole area drained by this system, both north and south, was taken up. Later, the basin of the Great Lakes was reached by the route of the Mohawk River Gap, the use of which was much bettered by the building of the Erie Canal in 1825. The mingling together through this device of the waters of Lake Erie and those of the Hudson River made, indeed, the settling of the Lake region possible. At no time during this century did the price which the government charged for farm land hinder its settlement. In fact, farms were given away.

The "taking up" of the prairie plains and the plateau regions of the west by farmers followed the Civil War. This came largely as a result of the great boom in railroad building in these regions which took place at this time. Says Bogart:²

The increase of almost 75 per cent in railroad construction in ten years (1870-1880) far outran the growth in population. Most of the new building took place in the northwestern states and afforded an outlet for the grain supplies which these

² Bogart, *Economic History of the United States*, p. 305.

states were beginning to pour into the world's markets. During this time (1870-1880) the population of the northwest increased 44 per cent.

Naturally, the movement to the west, when done in such haste, was overdone. Great numbers of farms which had been started in the arid plateau plains and in the mountains farther west proved worthless and were given up or were changed into cattle ranges. The conifer forest lands of the Great Lakes states had a like history of "boom times." Here, too, was the overmaking of farms, and the later retreats of farmers to regions with better farm conditions. In a like way, the seaboard states after the Civil War suffered from an epidemic of farm desertions which was little less than tragic. The number of farms in New England alone was cut down to a number little better than nominal. This followed as the effects of competition with the new farms of the prairie states. The event is all the more striking, too, from the fact that the region in question had at one time fed a large population. It now dropped to the level of a region of "abandoned farms."

In the cotton states the original "taking up" of farms and the later shifting of the farming pursuit took still another form. In these states, the growing of cotton and the use of slaves had at first given rise to the plantation scheme of land tenure instead of that of the farm. The Civil War, by freeing the slaves, made this system a losing style of farming, and the breaking up of the plantations into little farms became the result. In the State of Mississippi alone the number of farms of 10-acre size grew in three years (1867-1870) from 412 farms to 10,003.³ Naturally, much of the old plantation land was

³ Bogart, *Economic History of the United States*, p. 273.

never again made into farms, so hurtful had been this style of farming to the soil.

The ideal of a "permanent agriculture"—an agriculture in which land tilling instead of land speculation should be the job of the farmer—has been the hope of our husbandmen for many years. Only lately, however, has this goal been reached in even a small measure. During the formative period of our rural growth just told about, the values of farms in older regions were vastly unsettled. This was the natural result of rivalry with fresh and free material for farms—a rivalry which took place with every "rush" of settlers to new areas of free land. The extent of the fall in value in the older farms, which free homesteads brought about in this way, rested wholly upon the size and richness of the new areas which were offered.

Unearned fortunes were made by these risk-taking migrants known as "homesteaders." On the other hand, fortunes were just as surely lost to farmers of the older regions through the fall in value of their farms on account of this new competition. The supply of the government's free arable lands came to an end some twenty-five years ago, and an end was thus put to the rosy dreams of the frontier land-hunters. It brought to the farm values of the real farmer, on the other hand, the long-hoped-for boon of permanency.

The acme of our farm regions and, therefore, the treasure spot of our food supply, so far as resources are concerned, may now be shown in a fairly exact way. Luckily for our purposes, the United States Department of Agriculture has been beforehand in making this study. It has itself located the farm El Dorados of our land. This able department has lately put out a bulletin (No. 771) in which the regions with the best-yielding farms

are officially given. "Arable land in the United States" ⁴ is the title of this bulletin, and its data will be used freely in the following pages. The worth of this matter is deemed so great, indeed, that, at the risk of proving tedious, census data will also be given which further extols the merits of the region in question.

The upper Mississippi Valley is, of course, the heart of the food-growing area of our country. The central area of this great valley, sometimes known as the "corn belt," is frost-free, has copious rains and is found to have the black earth type of soil. Says the bulletin:

Most of the present arable land, i.e., improved land, in the United States lies east of the 100th meridian, and is concentrated in a triangular area roughly bounded by a line from southwestern Pennsylvania across Kentucky and Missouri to central Oklahoma, thence northerly to north central North Dakota, and thence southeasterly across Minnesota, Wisconsin and Michigan to the point of the beginning. In this region, which includes only one fifth of the land of the United States, are produced four fifths of the corn, three fourths of the wheat and oats, and three fifths of the hay crop of the nation.⁵

It might well have been added that one half of the livestock products of the country come also from this favored region. The bulletin goes on:

No region in the world of equal size affords so favorable natural conditions for the growth of corn, the most productive per acre of the food crops, and few regions possess so favorable conditions for the culture of the small grain and hay crops.

For the states which are grouped within this triangle, too, the high records of individual yields confirm the view

⁴ Separate from the Department of Agriculture Year Book, 1918.

⁵ *Ibid.*

given above. The relative rank of these states in food production as judged by actual output is extremely high. We find here from the census that first place among the states of the Union is taken by Illinois in the growing of corn and oats; that Iowa leads all the rest in swine, hay, and poultry; that Kansas is first in winter wheat, and North Dakota in spring wheat; Minnesota takes the lead in the yields of barley and Michigan in rye and beans and is second only to New York in potatoes; Wisconsin is second only to the same state in dairy products, while Illinois follows Texas in having the highest number of cattle, and Ohio is eclipsed only by Wyoming in the number of sheep. In short, in the production of the "big four" articles of our food supply, this region takes first place with regard to wheat and pork and second place only in respect to dairy products.

Foods which the Mississippi Valley cannot produce to advantage, on the other hand, are the citrous fruits of Florida and California, the fruits, rices, and vegetables of the Atlantic States, sugars of Louisiana, and the Durham tobacco of the Carolinas. Our great region of arable lands is still further blest. It has a land surface which is smooth and level and is thus easily worked by machinery, and shipping facilities both natural and acquired are of the very best. It is easy to see, therefore, that in the great gift of the Mississippi Valley, Providence has shown a mood of the most generous sort.

Besides the heavy-yielding farms in this triangle of the upper Mississippi, the bulletin on "Arable Land" shows other Edenic regions. These are of course the results of the union of good soil, climate and rainfall and are almost atomlike in size as compared with the great region. In central and western New York, in southeastern Penn-

sylvania, and the near-by sections of New Jersey, Maryland, and Virginia, regions of old and fertile farms are to be found. The "blue grass" lands of Kentucky, the Nashville Basin, the Tennessee River Valley of Tennessee and a few counties in the Piedmont of Georgia are southern soils with a rich environment. Further than these, the upper Coastal Plain of the States of Alabama and Mississippi, some counties in the delta of Louisiana, and the Black Waxy Prairie of Texas, show us the best regions which the South has to offer. The Valleys of California and the plateaus of southeastern Washington, northeastern Oregon and the near-by section of Idaho make up the rest of these farm "bonanza" sections of our country.

It is easy to be seen now, when all these areas are named, that the yields of our "black earth" belt are added to in no small measure by the responses from these smaller districts. The simple test by which these last-named areas become listed among our "arable lands" is the one, namely, that 50 per cent at least of their acreage must be under tillage. The relative poverty of our food heritage in the happy blendings of climate, moisture and soil may be seen at once from this test. In a word, the rest of our domain outside the farm triangle and these favored scattered regions fail in having this 50 per cent of tilled acreage.

CHAPTER V

FARMING AND THE FOOD SUPPLY

THE story of food supply must be lacking, of course, if nothing is said about the farm methods, by which soil, rainfall, and climate are turned into crops and live stock. It is taken for granted too often, indeed, that with good natural resources a full food supply will follow. This quite does away with the work of the farmer by whom these elements are handled and to whom this task must be made a source of gain, or else the business of farming cannot be kept up. Let us now look at those aspects of this great pursuit which are of chief concern to a food supply.

FARMING FOR THE MARKET

Farming, as we have said before, was carried on over the whole world until the middle of the last century, for the purpose, mainly, of feeding and clothing by its own products the farmer and his family. This was called the self-subsistence or self-sufficing style of farming. A program of crops and other farm products that would satisfy all the wants, if possible, of the farmer and his family was used in such a type. Even manufacturing was looked upon as a proper part of farming, and the making of homespun clothing and of homemade tools were a part of the work of the farm family. All this was changed with the coming of the railroad, the telegraph, and the factory, and the farmer has now become a producer for the

market, the same as artisans produce for the market. Within the limits set by climate, rainfall, soils, and the other gifts of nature, he now grows the thing that will sell to the best advantage. The farmer now leaves it for others to produce the things he needs for himself and family, and to the scheme of exchange for the getting of these things as he needs them. The farmer has become a specialist and therefore looks to others as others look to him in order to satisfy his wants.

This change in America is usually looked upon as having taken place at the time of our Civil War—a time when the machine came into general use upon farms largely as the result of the absence of men upon War duty at the front. The new truths and devices of science, given to the public by our farm experiment stations and colleges, and by the farm department at Washington have had also much to do with this change. A single one of these, the well-known Babcock test for finding out butter fat in milk, may be taken as typical of the rest. The present-day milk and creamery trade, indeed, would hardly have been possible without this useful device, since milk is everywhere graded for market by the Babcock test, and its use is quite as widespread as is the extent of the dairy trade itself. It should be said, also, that this valuable test was given free by its inventor to the public, since no patents were ever taken out upon it by him.

NATURE OF OUR AGRICULTURE

The agriculture of our country is earmarked on the whole by the presence of the medium-sized farm business which prevails everywhere. This, as it happens, is a truth which may be said also about the farm itself, since

a farm and a farm business are not the same in fact, as doubtless every one knows. When one recalls that the violet farm of a few acres and much capital may make a much larger business than the western ranch of many acres and little capital, the difference between the terms is seen at once. As among Anglo-Saxons everywhere, 80 or 90 acres is the amount of actually tilled land which makes the measure of our farmer's capacity. However, through pasture, waste, and woodland our typical farmer's land-holding is nearly twice this size. Farm efficiency is the first gain which comes from this fact of medium-sized or "family farms," and the widespread belief that our farmer handles his farm well is borne out by the facts. Besides efficiency, the medium-sized farm business has another import and this is one of broad, general social worth. This is the one that in no other of our basal pursuits is the business unit of such a size as to be capable of easy handling by the individual-owner-manager except in farming. The free and "self-bossed" man with a "stake in the ground" is typified by the American farmer. Since facts of this sort are thought everywhere to give self-reliant and steady people, it is to the farming class, therefore, to which we must look for strength in these respects.

Farming is one of the most complex of arts, whether looked at as a whole or from the point of view of its unit—the farm. The many varieties of farming of which dairying, cereal-raising, and cotton-growing are types and the ways in which climates, soils, and seasons work give to each farm locality marked technical aspects. Craft methods on the single farm itself are also very complex. Tiling and draining, tilling the soil, the weather, the harvest, and the market are terms which bring up a medley of feats and factors, the number of which is not greater

in any other line of trade endeavor. Many diversities in the value and nature of products, and in the style of doing things as between one farm and another the country over, are to be found. Some farms, in putting forth dairy products, or wool, or meat, may almost be classed with factories; others give only raw products, such as the grains, the roots, and the grasses. The "corn belt" farmer gets a yield which is twice as valuable as is the yield obtained by the southern farmer. Farms may vary in size from the small truck farm of our city suburbs to the huge "bonanza farms" of the west. Some are farmed intensively, others extensively. There are "dry farms," and irrigated farms. It is easily apparent, then, that of all industries farming is least adapted to routine methods—could be managed least easily by government or by a trust.

In looking at farming from the point of view of the sum total of all its aspects, we readily discover two divisions or separate lines of interest in the pursuit. There is, first, the aspect which deals with the inside make-up and processes of the farm, and, second, the one which has to do with the outside relations. The first deals, of course, with matters of farm detail—cropping systems, size of farms, soils, stock handling, farm bookkeeping, etc. The second has to do with the marketing of farm stuff, rural credit, insurance, land tenure, and coöperation. This is the side of farming which is known by the specific name of farm business. Farm business, indeed, under the new status of this art—a status which is named in a word by the term "commercial agriculture"—gives many different problems from the ones which were given by the old style of farming. Many types of farming, for example, now compete with each other for the favor of the farmer. The census re-

ports show twelve of these, but a list of this length by no means exhausts the number. Farms have become very costly, and the proper setting up of the farm as to size, buildings, tools, live stock and labor and the proper rotation of crops have become matters of first-rate business importance. The manner of the farming, too—the so-called tone or quality—has also come to be a matter of exact record, and is often the factor that spells good or poor success on the farm.

The six millions and more farms in the United States are, of course, the main source of our food supply, though the actual food as it comes to our table seems often far drawn from its origin. These farms make up the largest amount of tilled land to be found in any country in the world. Huge in numbers as our population is these farms show a per capita amount of food-giving land equal to 5 acres for every member of our national family. Food production, too, is our biggest pursuit in respect to the value of the annual product, the number of people engaged, and as to the worth of the property which is involved. All the factory plants in the country taken together were valued in 1915 at \$22,000,000,000, while farm property was worth twice that amount. In general, we are a self-dependent people for a food supply, only tropical or semi-tropical foods, such as sugar, tea, coffee, rice, and some of the spices being brought here from abroad. Let us now take up briefly the big features of farm practice and then give some attention to the new side of agriculture—the farm business.

Farming is suitably defined as the changing of land and climatic elements, through crops and live stock, into profit and utility. Land is the big factor in the farm pursuit. The initial outlay for land is greater than for any other

factor, and land is the farmer's peculiar trade element. American and English farmers handle more land in a farm than do the soil tillers of any other race. In both countries an average area of 70 acres measures the ability of the farmer to handle soil. In France and Germany the entire farm of the tiller has only 34 and 19 acres, respectively. The average-sized farm in this country—147 acres—has been much shaped towards this exact size by the fact of the early division of our public domain into mile square sections of 640 acres each. This made the quartering of these sections into farms of 160 acres each a fairly easy feat. In addition to this, the various homestead laws which grace our national land policy have had an influence. These laws early in our history hit upon 160 acres of land as the amount which the government was willing to give away as a single farm. This also helped to fix the type size of the American farm.

Land handling has been a problem of vital note to all peoples everywhere. The public interest in this respect was taken care of in feudal times by letting the nobles own all the land—these nobles being then held to account for the amount and methods of farming which their tenants carried out. Public interest at present is thought to be best looked after by allowing the ownership of land at will, leaving it to the motive of self-interest in the farmer to urge good methods and good yields. Socialism with its plan for the public holding of all industries finds a fatal check in this matter of the proper handling of land. How to get proper tillage of the soil, and, at the same time, get rid of the private ownership and control, is the great stumbling block which faces the Socialists.

LAND YIELDS

The yield in crops or other products from a piece of land—the climate and moisture being taken for granted—rests upon its capacity for outlay. In other words, its ability to respond to tillage and to the use of capital with suitable returns. So long as an added use of labor and capital will get a return which exceeds in value the costs of the added outlay, land is more and more productive. When this result is no longer the outcome, however, and the reply to an added outlay falls short in size of the returns from previous outlays, then the land has passed its best. Farmers prove this truth daily by tilling not only their best fields but also those of second-rate soils, and even those with very poor soils. “It will not pay,” is their reply to the query, “Why not give all your effort to the good field?” The matter of “pay” in fact is the modern aspect of this great law of land yields. In our present-day farming for the market, the farmer tends to see his outlay upon land as money costs, and unless he gets an equivalent in money profits his land yield has “not paid.”

Happily, this is an elastic limit upon the yield of land, since the point of maximum outlay for profits varies with changes in methods of crop rotation, with new types of machines, with new crops, and with changes in prices and expenses. Wet lands, for example, may be made capable of giving further added yields for added outlays by a good system of drainage. Intensive farming, which is the term used to cover the tillage of land to the utmost, has many wiles for pushing the returns from land up to the very highest which may be had with profit. This sort of farming may be overdone, however, since the large

yield per acre of land which intensive farming gives may be obtained by the too great sacrifice of the farmer.

This stubborn way in which land resists the efforts of the farmer makes by far the chief costs of production in the pursuit. Soil fertility may be put back by manures, and washed-out soils may be replaced, arid soils may be irrigated, and wet soils drained, since all these are at present a part of our farm practice. But the goad which will get further paying responses out of land after it has reached its best is not known. All peoples have found this out, and the great migrations of races have been caused by the fact of the limit to the responses from land. "The land was not able to bear them, that they might dwell together," made Abraham separate from Lot. The number of stalks of grain even which may stand upon a field must of course have a limit somewhere and cannot be overstepped. But long before this point is reached in the tillage of land the people will have wisely chosen to move on and try other soils, even if less fertile.

The present-day "conservation movement" of which we hear so much tries to do a task which is much simpler than that of giving land a new nature. Conservation tries simply to keep the soil from being robbed of its plant food by overcropping. It also tries to check the loss of this gift through being washed away by heavy rains or floods. The weathering away of the soil may also be stopped by the use of certain crops. But conservation fights in vain, as all other movements do, against the ultimate limits upon the yields of soil which are set by this great law of diminishing returns in land.

The soil itself, as told about in an earlier chapter, is a land covering in some places many feet thick and in others only a few inches. It is made up of humus and of certain

minerals and has an especial soil, air, and water. It is said by some to have a quality like that of organic life, since its fertility renews itself from period to period, and certain soils, those of China, for example, are still fertile though they have been tilled for thirty centuries. Plants are fed by the soil in a way which is very much like that in which man is built up and gets energy from food. We know that plants are made up of certain chemicals, and in the main, a soil which cannot give these elements is hopeless for plant growth. The vital task of conservation may be seen from the fact that it is said to take 10,000 years to form a foot of soil under natural conditions. "If only an inch of soil were wasted each thousand years the soil-making agencies would supply the loss," says a recent writer, "more than that means disaster."¹

FARM LABOR

The big part played by nature in the farm business is well shown by the control of farm labor which is held by climates, weathers, and seasons. Labor used in the factory, in commerce, or in the professions is almost let alone as to time and place by outside control. Farming, on the other hand, is strictly a matter of seasons. It is carried on under close control from droughts, rains, frosts, snows, hail, soil features, times of year, and other natural conditions. The changeable nature of farm work brought about in this way makes the close division of labor in this pursuit out of the question. The farmer, therefore, loses the services of the expert with all the resulting gains. Nature's control also hinders the large use of men and of

¹Gregory, *Keller and Bishop*, p. 76.

machinery, which prove the means of such large profits in other trades.

The farm laborers make up by far the largest body of men of this class who are not joined together into unions. This lack of unity among farm laborers comes no doubt from the fact that they are widely spread over many farms, and the getting together is not easy. Again, farm laborers pass quickly from the hired-man class into the farm-owning class. The farm-hired man in fact is already on the second rung of the short but steep ladder by which the owning of a farm is reached. Students have shown that one third of our farm owners take this rung in moving up ² and that the usual age for going further is 26 years. It is hard to unionize men who leave their class at such an age and in such numbers.

Farming is much more dangerous than is commonly supposed and this has some bearing upon the relative lack of farm hands upon the farm. Workmen's compensation laws in almost every state leave farm laborers "outside the pale" of their benefits. This is usually explained by the statement that the dangers of farm life are too great to be requited by the method of these laws and leave anything of profit to the farm owner. Danger upon the farm comes from the care of live stock mainly, but it also comes from the use of machines and other utensils. In this latter case, no farm hand can hope to become expert in the use of any one machine, since farming takes so many kinds from period to period. In addition, farm machines cannot be easily safeguarded in the way factory machines are, and this gives a further menace.

² Spillman, "The Agricultural Ladder," *American Economic Review*, Vol. IX, Supp., p. 170.

FARM EQUIPMENT OR CAPITAL

The working capital of a farm is made up of tools, machines, live stock, and many sorts of buildings. The typical farm in the United States at this time benefits from a \$1,781 outlay for buildings, \$557 for machines, and \$1,243 for live stock, as stated in the 1920 census.

The use of the machine upon the farm instead of the tool has added to the farmers' output hugely. In 1830, 8 hours were used to produce a bushel of wheat, while in 1896 only 10 minutes were required. The shift from the use of the tool to the use of the machine upon the farm began near the middle of the last century with the invention of the reaper by McCormick in 1831. Owing to the needs of the harvest that its operations be done quickly and at a given time through dangers from the weather, this feat becomes the limiting task to all other farm work. The merits of the reaping machine, therefore, in cutting down the harvest periods gives a wider use to machinery for all the other processes of grain raising. The use of machines has gone on now until hardly any farm work needs to be done by hand. In the United States as a whole, so it is claimed, the output of the average farm worker has been made 86 times greater than it was before the coming of the machine. In the single case of growing barley, the estimated gain in efficiency is more than 2,244 per cent over what it was 70 years ago.

The extent to which equipment may be used on the various types of farms differs widely; as much as \$15,000 worth per acre may be used on the "cut flower" farms while the meager outlay on the "one-horse cotton farms" of the South marks the other limit. In general, the more complex the way by which the output from the farm is

procured the greater will be the need of capital—a dairy or fruit farm using more outlay than a grain farm of the Northwest.

FARM ORGANIZATION

The way in which these factors of land, labor, and capital are put together gives the style of farm organization which is employed. As every one knows, a crop of 100 bushels of potatoes may be had from using either much land and little labor, or much labor and little land. Now land in a new country like this has always been plentiful and, therefore, fairly low in price; labor, on the other hand, has been the reverse. Our farmers, as a rule, have used in relation to labor much land and this has given us the far-famed style of farming known as the "extensive." It is a plan which has been harshly judged by those who take old-country types as standards. It has been called "shallow farming," "soil skimming," and "land hogging," by those who find that our yields per acre are much less than those of other countries. Quite possibly these yields in older lands are higher than they should be if the farmer is to receive a profit.

"High yields per acre or high yields per farmer" is the choice which a people must make as to its style of farming. The machine tillage of large farms in this country and the close heeding of nature's decrees as to what shall be grown has given us a return per farmer of large size. A "stabilized farming"—farming with the price risks cut down—is the goal of the morrow. This will permit the farmer to use his large yields per man to better advantage than has been the case in the past—anarchy in production having ruined too often his markets through "bumper crops." At any rate, our farmers are stanch users of

land as a means for making a crop, and extensive farming will without doubt be our mode for many years to come. No one may doubt that the status of a pursuit like farming will and should rest upon the returns per man rather than upon returns for any other factor.

The farmers' calling has been rightly set forth as that "of tending the sluiceways from which our food supply flows." The view of farming which one gets from hearing the usual publicist speak is not the true one. Farming as he tells about it, when talking about our great rural resources, is only a kind of harvest, like hunting or fishing. Having the resources, the food flow must follow. Quite contrary to this, farming is a creative art and the products belong solely to the creator and must be made a means of profit to him if their flow is to be kept up. Commercial farming simply stresses the farmer's search for money profits and brings out several new ways by which he seeks them.

RURAL CREDIT

The larger use of productive credit is one of these means. The farmer like every other business man needs credit to "carry him" through the nonreturn times of his trade. Knowing that through the use of credit, he will be able to get labor and machines to care for his crop, or fertilizers to make it larger, he uses his plant to the utmost. Sometimes again, if markets are bad, credit gives him the means to hold his products for a better price. Sometimes, also, a fruit grower may obtain credit which gives him the insect cures with which to save his crop from ruin. In fact, the farmer is always ahead through the use of this great resource when handled with proper care. This increase of his business is at a

rather low expense, too, and, if carried on by all farmers, must vastly enlarge the total farm output, thus helping both consumer and farmer alike. The starting of new things like cattle feeding or pure stock breeding is helped also, when the starting outlay can be had upon credit. All of these farm projects are proper objects for the use of credit, since they are productive outlays. They need only to be taken care of with credit in order to make them good schemes for both borrower and lender alike. The fact that the first move to give the farmers better credit facilities began with the government and was backed up by city men shows that benefits to the public at large were looked for from this effort.

The question may now be asked Why should the farmer have special credit devices? Certainly, the use of credit is already a firmly fixed part of our economic life—vast classes of men and groups of agencies being given up to the handling of it. The answer is that these agencies and methods in the main are adapted to and used for the help of trade or commerce. Our present-day banks are almost wholly of the commercial type, and their ways and interests are aloof from the needs of the farmer. "Short time" loans, for example, are a keystone to the commercial bank's safety. But a farmer cannot use a 30- or 60-day loan. He has no project which matures in so short a time, so that credit of this sort is worthless to him. Besides, farmers, as a rule, have no credit ratings or credit habits, and the commercial bank finds it hard to deal with them.

Another proper use of credit to the farmer is for the purpose of buying land. Now the service of a piece of land lasts through a great many years. In other words, land gives off its uses in a series, and this run of services

may continue through several decades. Naturally, if credit is used in buying a piece of land, the buyer should not be asked to repay the credit until after the uses from the land have been secured. The need here is, of course, for a different sort of credit from that which was spoken of above. For the running expenses of farming, credit is wanted for a year or two years of time. But for buying a farm, or for buildings, or for tile drainage, credit is needed for a much longer length of time. Periods of from 10 to 20 years are not too long for such credit uses.

Agencies dealing in this sort of credit should be able to handle mortgages, since mortgages are the credit instruments which farmers employ. They should also allow piecemeal returns of their loans. This amortization of the farmer's loan so that he can pay it back in morsels if he chooses gives him a much cheaper credit than though it came upon the usual straight loan. Amortization is also more handy, and is in every way a vital part of any long-time credit plan. Banks giving this sort of credit are of the same class with trust companies, bond houses, and stock exchanges. They deal in investment rather than in commercial credit, and the larger amount of the credit dealing of the country is of this form. Happily, we now have in the Federal Farm Loan Bank an agency which should satisfy the farmer's needs for long-time credit to the fullest degree.

The central idea in one of these Farm banks is of the most simple sort. Mortgages, which are the farmer's chief credit papers for long-time loans, are a form of credit paper which do not have a ready market. The sums which they call for are too large in amount as a usual thing, and their identity is not easily proved. For

these papers, the land bank acts as a grading agency or, in other words, brings them all to a standard. The scheme for doing this is in no way complex. Against a batch of these well-chosen mortgages, the land bank simply issues an equal worth of low denomination bonds. These bonds bear a rate of interest a trifle lower than the rate paid by the farmer on his mortgage and are sold everywhere. Once sold, a new batch of mortgages may be bought and dealt with in the same way with the proceeds. Any farmer who wishes long-time credit may make use of this plan by simply offering a mortgage for sale. The success of the plan with us is well shown by the fact that many millions in bonds have been sold thus far, and thousands of farmers have procured the credit which they needed.

FARMERS' COÖPERATION

Farmers as a whole have gained lately by the class strength which has been secured and the trade wastes which have been cut out through coöperation. Farmers' unions for business gain are now numbered by the thousands—the last census showing that 10 out of every 100 of our soil tillers belong to these associations. There is no part of the country where they fail of success, but their numbers seem to be greater in the states where the small farm business prevails rather than in those of the large farm business.

Farmers have commonly tried to coöperate for business ends in the handling of telephone systems, insurance, creameries, breeding clubs, goods stores, and marketing exchanges. This last variety is easily first in rank at the present time in point of numbers, and the familiar names, "coöperative creameries," and "elevators," and coöperative

fruit, potato, and cattle-shipping exchanges, show that it is used by every branch of farming. The farmer is famous as a man who "goes it" alone and is loath to group himself with others. His isolation and the nature of his pursuit make him of this type, but the pressure of his economic needs kills scruples, and he now seeks like others the strength which comes from union.

The objects to be gained by coöperation are not always the same. They differ in respect to the varying conditions under which unions are formed and their objects and prospects. In general, however, the avowed purpose for which any one of these associations is formed is to provide a scheme by which a common service is given to each of its members. This service may be the putting of a selling or buying device into the hands of every member, or a factory facility, as in the case of the creamery, or a mutual loss-bearer as in the case of insurance, or merely the cutting out of waste as in the case of pest controls. But the basic motive is always the same in every type of coöperation. Always, it is the intent that by this means there shall be put at the service of each member some utility which he otherwise must do without, or, if secured, must be paid for at too high a price. The entire measure of merit in these unions of farmers is the amount of service which is given to the association members.

The typical scheme by which farmers get together in these unions is a further proof that the giving of service to their members is the keynote to their being. Everywhere the model plan of an association lays down the rule that each member shall have one vote and but one in the control of the society's affairs. The rule, too, is that a member's benefits are given him on the basis of his

use of the union during a period of time. In other words, there are no share votes nor money dividends in these concerns as is the rule in the usual corporation. The "one man one vote" plan as a method of control, and the "patronage dividend" as the method of awarding benefits are the touchstones of good coöperation. In short, they are a union of human beings giving a common service to each other rather than a union of dollars as is true of the regular joint stock company.

Public policy has favored these societies in many ways. They were freed by law from the rules of the Hoover Food Board during its existence; they are exempt from the federal tax on corporations which all others pay; and by the recently enacted "Capper-Volstead" Act they are immune from the penalties of our anti-trust laws. Nowhere, one may judge, is there any fault found with these farmers' agencies.

The basis upon which the starting of one of these associations rests—especially the market exchanges—is one of extreme simplicity. Two or three farmers in some locality wish to sell directly to the wholesale markets. They are not able of themselves to provide as much farm stuff as will make a carload. Neighbors are asked to help fill in, and the great gains which come from carload shipments are made possible. None of these farmers know much about the methods of markets, so they hire a manager to take up this side of the project for them. A plan is at last drawn up as to members and the places they shall have in the union. The business plan is also agreed to and, probably, a charter is secured. Expenses are taken care of, and after the manager is given a place for a central office, the concern without more ado begins its work. Gains of the same nature as those made through

the massing of the local farmers may be had also by the plan of federating the local societies into larger groups. Most of the farmers' coöperative concerns, therefore, are members of some larger group. Associations of people of the coöperative sort, as a matter of human nature, find pleasure in the social life which is made possible. Dinners, socials, picnics, and lecture courses are, therefore, a common feature in the customs of these societies.

Broadly speaking, the economic niche into which these coöperative sales agencies fit is the niche in the middleman system held by the local shipper of farm stuff. Some, indeed, by federation have been able to take the place also of the wholesaler. But few or none, however, have bridged the entire gap between the classes which produce food and those which consume it. In other words, a few only have fully succeeded in cutting out all sorts of middlemen. Usually a marketing union simply sells to the wholesale market the same as any other shipper does. The members benefit in these cases from having the whole price for themselves instead of the part only which is left after the local shipper has taken out his profits. The benefits from doing these things must be clear, however, since the present-day period of low farm-stuff prices and the resulting low profits has not lessened markedly the number of these unions nor their popularity.

Some farm trades have a natural economic grip upon their market. They are not only able to sell in common, therefore, but are also able to control to some extent the price of their output. Dairymen around a large city are able to do this. By joining together into a union, they sell as a unit their product, and city buyers must pay the price asked or do without the milk. By this plan, the price is said to be "stabilized," and price-cutting among

dairymen is done away with. It should be kept in mind, though, that dairymen have a control over their product which is unusual. Their product gains favor in a given city market by means of the Board of Health approval that results from the inspection which all cities now require dairymen to submit to. Other dairymen, who sell milk to other cities, are not able to get this privilege, and, therefore, the first group have a half monopoly of the market by this means. Milk is also a frail product and cannot stand shipment over long distances from other dairy areas. The city customers of dairymen are usually the city milk dealers, and these often buy in concert as one man. The result is that the united buyers and the united dairymen practice collective bargaining and hit off a price which is agreeable to both. Now that the Capper-Volstead law has taken off all legal bans against the unions of farmers, collective bargaining societies, such as these of the dairymen, are apt to flourish. The Capper-Volstead law substitutes the control of the Secretary of Agriculture for that of the antitrust laws and much benefit to farmers is looked for from this change.

FARM BUREAU

A special and notable type of coöperation is found in the case of the Farm Bureau which has in recent years made great headway among farmers. At bottom, this organization is for the farmers of each county what the well-known Chamber of Commerce is for the city man. To the County Farm Bureau Executive Committee each type of farming within the county chooses one or more of its devotees as delegates to look after the interests of this type throughout the county. The germ idea in

the Chamber of Commerce type of association, in the Russian Soviet, in the "community center" organization and in a half dozen more sorts of present-day societies is similar to this. The economic interests of men as a basis of union are stressed by this idea rather than social or political ones.

The Farm Bureau's executive is often the "county agent." He is then the one paid official of the Bureau and, in large counties, there are sometimes several of them. Membership is open to all farmers upon the payment of a fee. The Farm Bureau makes up the outstanding farmer's society of the present time, and its large program of effort—especially of an educational sort—makes it the best hope of the day for united farmers. In brief, the county Farm Bureau makes a clearing house for the ideas and actions of the federated farm trades of every county. It gets up programs of rural betterment and sees that they are carried out. These may be in the line of pest or live stock disease cures, or a pure seed campaign, or the getting of rural credit, or the starting of coöperative exchanges, or any other one of the dozen or fifteen major interests which a modern farmer has.

County Farm Bureaus like coöperative societies have seen the benefits which come from federation. In some commonwealths, there are State Farm Bureaus, and these last have now united and formed a national bureau. The larger agencies duplicate the county bureau make-up both in the manner of their organization and as to their activities. The National Farm Bureau, for example, is trying to keep up a grain-selling exchange which may be used by all bureau members within the land.

No other farmers' movement has ever swept the country like this one. In rural counties, in farming states,

from 50 to 100 per cent of the farmers are dues-paying members. In a state like Michigan, more than 90,000 members are listed. That the Farm Bureau has a stable place in our agricultural future, few doubt who have taken the trouble to study its methods.

Since the county agent, spoken of above, is the central figure in this Farm Bureau activity, the story of the tasks and methods of this unique official may well be taken up here. The county agent, whether man or woman, and no matter where found, is first and mainly the farmer's adviser and teacher. He brings to the farmer the teachings of the Agricultural colleges and the fruits of research from the experiment stations. As an adviser, there are no problems having to do with the farm which the county agent may not be called upon to solve. A short summary of the typical agent's services shows him engaged in the judging of live stock and of seeds, in the promoting of tile drainage, and in teaching the cultivation, pruning, and spraying of fruit orchards. Everywhere, he gives aid with regard to tillage, seed time, crop varieties, and methods of harvest. He is also the adviser as to when to market, what crop rotations to pursue, how to get credit, and the proper uses of the farm machine.

But the county agent is more than an adviser, he is also a teacher, and like all teachers who believe in "learning by doing," he finds that pupils learn best when they do their own experiments. Through the so-called demonstrations, therefore, upon the farms of his pupils, he tries to see that each farmer learns something from a practical lesson.

In this work of demonstration, the county agent is often helped by the "subject matter" expert sent him from the State College or from the Federal Department

of Agriculture. These experts are the "first helps" to county agents, and state colleges and departments of agriculture everywhere keep upon their staffs these "teachers on mission," as they may be called. Teachers of this sort belong usually to one or the other of the regular divisions of the college. Their rank is commonly that of a professor, and indeed, they differ from the usual faculty member only in the respect that their work is afield rather than in the classroom or laboratory. Theirs is the task of being ready for the call from the county agent in the field to hasten thence with the helpful special message. This done, the subject-matter experts return to the college to await another call.

In the second place, the county agent is the country life organizer of his county. A moment's thought will show that it is out of the question for any teacher to keep up, or even to get in personal touch with, every farmer in a county. Therefore, it is needful to the county agent that he perfect some other means of carrying his message to his pupils than himself. The organization of his followers is the device. Sometimes, it is only a matter of the federation of existing societies, since in many rural regions farmers have already found their way to united action, and the agencies are already at hand for use. Too many clubs or groups are as bad as too much of anything else, so that new ones are not set up unless needed. Probably, however the "get-together" impulse has not been stirred in this especial county and needs the agent's help to bring it out.

The Farm Bureau is the especial type of farmers' unions, which the county agent mainly promotes. Its members, thenceforth, whether persons or clubs, act as teachers or sponsors for the county agent's work in all

parts of the county. It forms the agency by which communities are organized in respect to all their interests, and a helpful class feeling among farmers is brought out. Usually the headquarters of the Farm Bureau is in the county agent's office in the local courthouse. There its members meet at intervals to talk over "projects" or to decide upon tasks which shall prove helpful to the farming of the county.

A plan of teaching of such vast scope and unique type as this, upheld by county agents, was never before set up on so small a basis of experience. Many trials and failures are, therefore, to be looked for. Trained teachers have been hard to get, owing to the novelty of this sort of teaching. The work of the teaching staffs, also, one sees clearly is too largely shaped by casual details rather than by the needs of a program. But there seems to be little doubt that this style of teaching which makes use of the demonstration and the county agent will find its place and maintain itself in this new field.

CHAPTER VI

FARM MANAGEMENT AND THE FOOD SUPPLY

WE now come to a study of the farm as a business unit. Here the farm balance sheet is our theme, since it matters little to a food supply what the general aspects of agriculture are unless the farmer himself is getting a profit. The farmer tends the sluiceways of our food supply and like other laborers "is worthy of his hire." As was said above, "farming is the changing of soil and climate, through crops and live stock, into utility and profit." Some account of this transforming agency and the methods used must, therefore, now be given. As the farmer himself would state our problem, it is the question of how to handle a farm so as to make it pay. We must first notice some traits of the individual farm units, and after that some ways of dealing with farms from the profit and loss point of view.

FARM TYPES

Farms are grouped into classes most easily from the point of view of the chief product in the farm program—the product from which the chief income is had. Our census reports list a round dozen of these classes, and every decade we are told by these reports how amply each is supplied with numbers of farms or how slightly. In the order of the number of farms in each class, this list is as follows: live stock, hay and grain, cotton,

dairy products, vegetables, tobacco, fruits, sugar, flowers and plants, rice, and nursery farms. Nearly four fifths of our farms in fact are found in one or another of these groups. The farm is seldom specialized in a fixed way to the output of a single product as factories and stores are specialized. Several projects are usually carried on at the same time upon the farm, and the entire list may be altered from year to year. Specialized farming means simply that some chief farm line is carried on through a series of years.

Grain growing is the most widespread of these projects which are carried out upon the farm, since no farm fails at some time to grow grain. Farming is often defined as grain growing with stock raising and sheep grazing as side lines for keeping up the soil fertility. Live stock, in addition, sometimes affords a means by which to market grains as in the case already told about of swine farming in the corn belt. But, the great help of live stock lies in the fact that fertility is thus given to the soil for more grain raising.

The stock farmer's notion of agriculture holds to the belief that farms are similar to factories. On this account, he holds that nothing should be sold from them except products which, like meat, eggs, butter, and hides, are derived from the cereals. Stock farming has two aims: first, the growing of animals for breeding purposes; second, the raising of animal products of all sorts including labor power. Stock farming is a costly type, owing to the cost of the first outlay and to the risks from disease. Like grain-growing, too, the raising of live stock in some degree is widely spread to all the farms of the country. This is proved by the fact that the ten states which make a specialty of stock raising have less than

half of the entire total of animals for the whole country.

Another type of farming is that of truck and fruit growing. Large cities give the markets for the products of this style of agriculture. The farm features of this highly specialized type are: (1) small area of farm; (2) high money value per acre; (3) the use of much equipment. Where shipping facilities are good, these farms are often far from markets as in the case of Norfolk, Virginia, and eastern Florida, both of which sell to the big cities of the east.

Farm types of the sorts named above may be found everywhere, broadly speaking, in all parts of our country. But, in general, there seem to be also focal points for each of these types around which their numbers gather in an especial way. A glance at a farm map shows, for example, that dairy farms cluster in southern Wisconsin and in central New York, and that all cotton farms are to be found in the Gulf States or their neighbors. Farm history is the tale of the shifts in production centers, which have taken place in a country on account of changing markets or natural conditions. Rochester, for example, was at one time the focal point for the flour industry of the land as Minneapolis is to-day. Sheep raising was at one time localized upon the hills of Vermont and New Hampshire, then Ohio and Michigan became centers of this pursuit, while to-day Wyoming leads in the number of flocks of these animals. The rule is that the enterprise which pays best to the farmer will be the enterprise which will master the field.

The grouping of farms from the point of view of the project from which the chief income is derived may be carried out to great lengths. The census office lays down the rule that in making classes of farms for listing pur-

poses a farm may not be grouped unless almost one half its total farm receipts comes from one sort of product. The name of this product will then be used with which to designate the group. There is almost no end to the classes of farms which may be found when looked at from this point of view of the chief products. We have violet farms and onion farms, mint farms, and ginseng farms, fruit farms and ostrich farms, grass farms, nursery farms, dairy farms—oyster beds make a species of farm—while celery farms and potato farms are not uncommon. We have poultry, chickory, sugar beet, bean, seed, tobacco and hay farms, all classified from this one standpoint of the leading output.

Farms are also grouped from the point of view of farm methods. This gives us the well-known general and specialized farms, irrigation and dry farms, and extensive and intensive farming. Some farm products in fact are in such great demand that a full supply cannot be grown upon special farms alone. These are grown, as a result, upon every sort of possible terms. They give, therefore, one of the causes for the many varied methods of handling farms which are found, since the same methods will not do for regions of different weather and soil conditions.

Mutton and wool are two farm products which illustrate the truth of variety in farm methods from this point of view. Sheep are wool-bearing animals in the west, and mutton is a by-product. In the east the reverse is true. Again, cattle may be dairy animals in one locality but in another are live stock useful for meat and hides. In the far west wheat is cut and threshed at the same time. A stacking operation separates these two processes elsewhere. Cornstalks are left standing for animals to browse upon in the corn belt, elsewhere they are cut and made

into fodder. Grass is pastured or else it is made into hay as one style or another of farming prevails. Some places prefer one sort of fertilizer, some another; and the same may be said of rotations and of tillage. In fact, farm methods vary everywhere in harmony with food demand, with soil and climate, with large capital or small capital, with tradition and custom and with special training or the lack of it. With a medley of farm methods such as this, it is little wonder that farms may be grouped from this point of view, nor that useful information is the result of so doing.

Diversified or general farming is the best known of the types of farms set apart by peculiarities of farm methods. This type is carried on at its height in the black earth belt. Here, good environment, good markets, and good shipping means require a large variety of products from the typical farm. This style also allows the farmer to keep his facilities in steady use—something desired by every business man. The high-priced lands of this region indeed makes this rule imperative and no other plan offers much chance of success.

Specialized farms are those which have no variety of products. Environment or markets assume such complete control in some regions as to compel a single kind of output from the farm to the exclusion of all others. Cotton in the South and spring wheat in the Northwest are the best examples of this fact. The cotton-growing type of farm is the small farm—less than 60 acres being the average size of such a unit. This is the result of the needs of a negro farmer who cannot handle with profit more than 60 acres. Cotton itself has been looked upon as a crop which is hard upon the soil, since the crop indeed needs a large part of the year for its making

and there is a lack of a good rotation. Spring wheat farming gives us the largest-sized farms within the country, save only those known as sheep and stock ranges. Farming of this sort is carried on mainly by machinery and gives several unique problems in rural life.

Irrigation and dry farming are different methods of solving the problem of aridity in our western lands. Both require special methods and a very high degree of skill in order to give success. Intensive and extensive farming are terms which refer to the degrees in which labor and capital are used upon a piece of land. No precise balance of these factors, however, is needed in order to mark off one of these types from the other since the terms themselves are used in a rather general way. The former is thought to be the better type of farming since it gives larger yields per acre. On the other hand, since land is the cheap factor in a new country like ours the farmer prefers to use this resource freely since it cuts down his costs. This results, however, in the "soil skimming" style of farming spoken of on an earlier page. It gives the much desired profit to farmers, however, and therefore is a worthy type.

THE NATURE OF THE FARM BUSINESS

The story of the money-making activities of the farm during a year may be well set forth by the "Income Statement" on the next page. This is a standard form of statement put out by the Federal Department of Agriculture, and it may be used with any of the classes of farms which were named above. It shows at a glance the business make-up and the financial activities of the farm during the year in question.

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FIGURE 11.—INCOME STATEMENT OF A MIDDLE WEST GENERAL FARM,
1910-1911

Area of Farm, 330 acres; 228 acres tilled*

Capital at Beginning of Year

Real estate	\$30,000
Live stock	3,909
Machinery	854
Feed and supplies	1,000
Ready money	255

Total\$36,018

Current Expenses

Hired labor.....	\$310
Board for help.....	152
Family labor.....	312
Repairs of machinery..	232
Repairs of buildings and fences.....	40
Feed, roughage.....	8
Feed, concentrates, grinding	10
Silo filling, threshing, etc.	60
Seeds, all kinds.....	148
Spray material.....	10
Fertilizer, lime.....	109
Taxes and insurance..	192
Miscellaneous	135
Decrease in feed and supplies	
Depreciation of build- ings and machinery..	
Steers	672
Horse	91
Lambs	415

Total\$2,896

Receipts

Milk and butter.....	\$
Cattle net.....	990
Horses net.....	355
Hogs net.....	216
Sheep and wool net....	667
Poultry and eggs net..	40
Corn	
Potatoes	744
Wheat	1,400
Rye	
Oats	
Hay	1,320
Beans	629
Straw	50
Increase in feed and supplies	140
Outside labor.....	

Total\$6,551

Farm income (Receipts less expenses)	\$3,655
Income from capital (5% interest).....	1,797
Labor income.....	1,858

* Warren's *Farm Management*, p. 541.

The statistical picture on the opposite page is not of itself a complete image of the farm business. Certain so-called supply crops were left out owing to the fact that they yielded no sales value. These were in the main feed and forage crops whose use is reflected in family upkeep and in live stock values. The market side of modern farming also is well shown in this "Statement." This appears plainly in the fact of the small share of the output, which was kept upon the farm and the large share which was sold.

FARM TENURE

The first question which comes up in looking into the details of a farm business make-up is the question of the form of the farm ownership and control. Who has the say in the handling of the farm? With other lines of business the control lies with the officers of a corporation or with the votes of partners. In a farm business, on the other hand, it is left, as a rule, to the decrees of the individual business head. Commonly, then, it is a control by a single farmer, and only rarely by a corporation or by partners. The second question now comes up as to how this one-man-control farmer stands up to his farm. Is he an owner who takes all the farm income to himself, or is he a tenant who shares this income with another?

This question of how the farmer relates himself to the farm is looked upon as a crucial question in all systems of farming. The banes and blessings of both methods have been much talked about, and volumes have been written upon each. Public interest has caused the census to gather data upon this matter of farm tenure for several decades so that the facts in the case are well known. That such an interest is shown in farm tenure is in itself

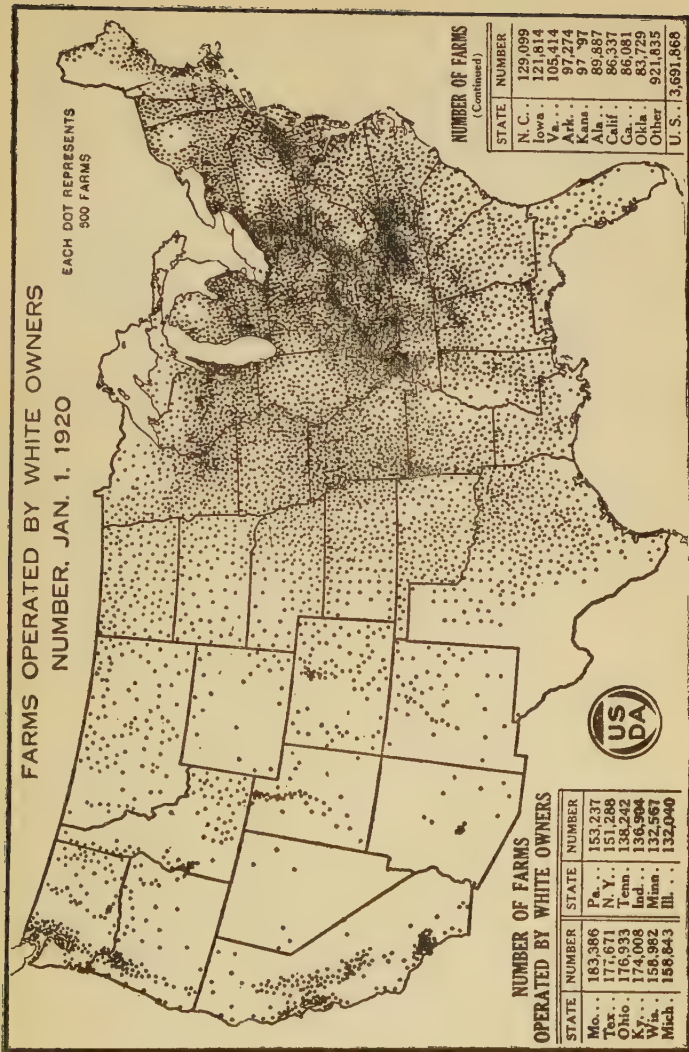
no small tribute to the esteem in which our food resources are held. There is in fact little public concern about the tenure of any other property of any kind save that of farms. The public never cares, for example, about grocery stores, whether they are owned or rented. But, on the other hand, the nation fears widely, so it seems, that the tenant-holding of farms menaces good farming and, therefore, the food supply. Public opinion as a result is adverse to such holdings.

The evils in a tenantry system from the point of view of the tenant has been the nub to this problem in many countries—Ireland, for example. But with us, tenantry has been a problem in farm management. We are stirred on account of its effect upon farming, and small concern has been felt for the tenant. Even the question as to which style of tenancy to adopt—cash or share—pivots upon the detail as to how the farm output is affected. Let us examine now the status of the tenant in this country and later the merits and evils of the system.

The custom of being a tenant instead of an owner in this country is steadily growing, and we now have out of every 100 farmers, 38 or more tenants, as compared with a percentage of 25 tenants three decades ago. Two parts of the country, that of the North Central States and that of the Gulf States, are the tenantry areas of the land. Tenantry thrives in the North Central States, because of the rich, high-grade farms found there which enable their owners to retreat to the towns and cities, thus becoming “retired” farmers. The leading tenantry state of the north is Illinois with 48 farms out of every 100 a tenant farm. Tenantry is caused in the Gulf States by the breaking up of the large plantations into little farms for the use of negro farmers. The proportion of

FARMS OPERATED BY WHITE OWNERS NUMBER, JAN. 1, 1920

EACH DOT REPRESENTS
500 FARMS



NUMBER OF FARMS OPERATED BY WHITE OWNERS

STATE	NUMBER	STATE	NUMBER
Mo.	183,386	Pa.	153,237
Tex.	177,671	N. Y.	151,288
Ohio	176,933	Tenn.	138,242
Ky.	174,008	Ind.	136,904
W. Va.	158,982	Minn.	132,561
Mich.	156,643	Ill.	132,040

NUMBER OF FARMS (Continued)

STATE	NUMBER
N. C.	129,099
Iowa	121,814
Va.	105,414
Ark.	97,274
Kans.	97,997
Ala.	89,987
Calif.	86,337
Ga.	86,081
Okl.	83,729
Other	921,835
U. S.	3,691,868

FIGURE 12

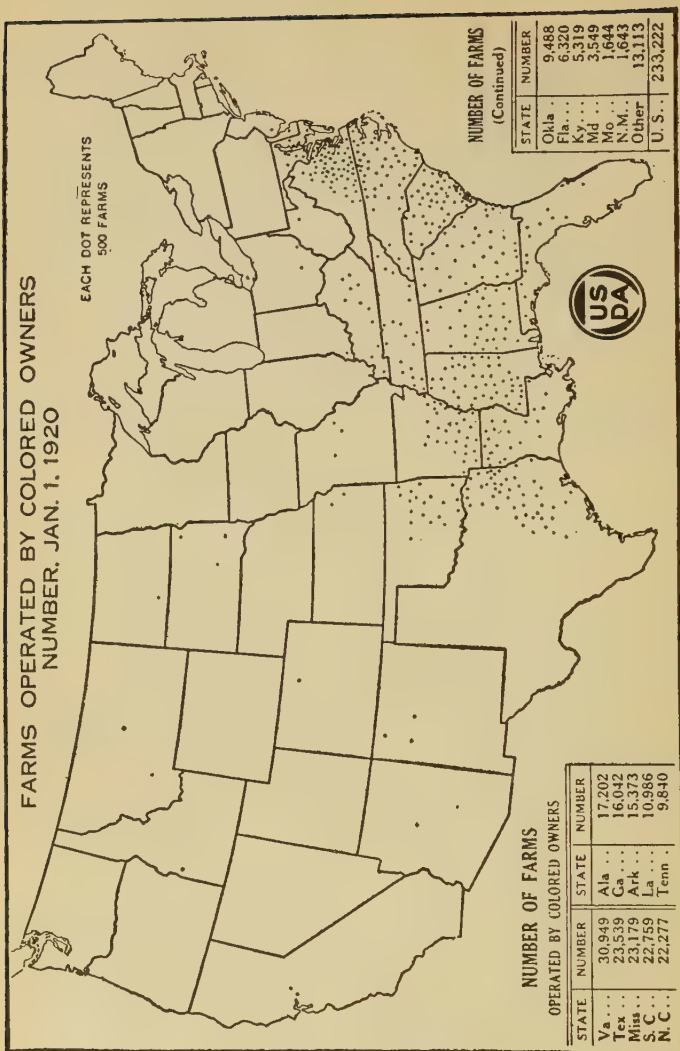


FIGURE 13

tenants to owners in this section is more than 50 out of every 100 farmers. The State of Mississippi holds the first place in the South with twice as many tenant farms as owned ones.

A tenantry or an ownership system of farming is worthy of study only because of the public effects which may result from the one or the other. It is claimed for the ownership holding of a farm, for example: that first, it promotes the worthy quality of conservatism in a people; second, that it urges industry and care upon the owner; third, that it gives an interest in country life and its agencies. Each of these claims may be fully granted, and the truth of each has been proved many times. The man with a "stake in the ground," such as the land-owning farmer has, gives way but slowly to the "isms" of the day. Hundreds of cases may be found to show that owners are more careful of property than renters are, and that ownership stimulates industry on the part of the owner. The backbone, too, of every farm community are its regular dwellers and not the floating renters who move each spring from farm to farm.

On the other hand, many claims may be made for a system of tenantry. The first of these is the one that very successful farming is done by tenants. In England, for example, all of the farmers except 4 or 5 out of a 100 are tenants, and British agriculture is of good repute. Secondly, tenancy in this country is a first step which is taken by many toward final land ownership. The census reports always give the ages of tenants and also those of the owners of farms as notable data. Farmers under 25 years of age are found thereby to be largely of the tenant class, while those over 55 are usually owners. Since these records have been kept up for many years,

it is safe to assume that the young farmers who made the big class of tenants 30 years ago are the ones who make up the big class of elderly owners of the later time. The table below taken from the census pages shows this grouping of farms as between tenants and owners for farmers of various ages during two decades.

FIGURE 14.—FARMS AS BETWEEN OWNERS AND TENANTS

Ages of Farmers*	Per Cent Owned	Per Cent Rented	Per Cent Owned	Per Cent Rented
	1890	1890	1900	1900
25 years	32.6	67.4	27.7	72.2
25 - 34	49.8	50.2	45.3	54.7
35 - 44	64.0	36.0	64.4	35.6
45 - 54	72.3	27.7	70.7	29.3
55 -	82.2	17.8	81.4	18.6

* Census 1890, Agriculture, Part I; 1900, Agriculture, Part I.

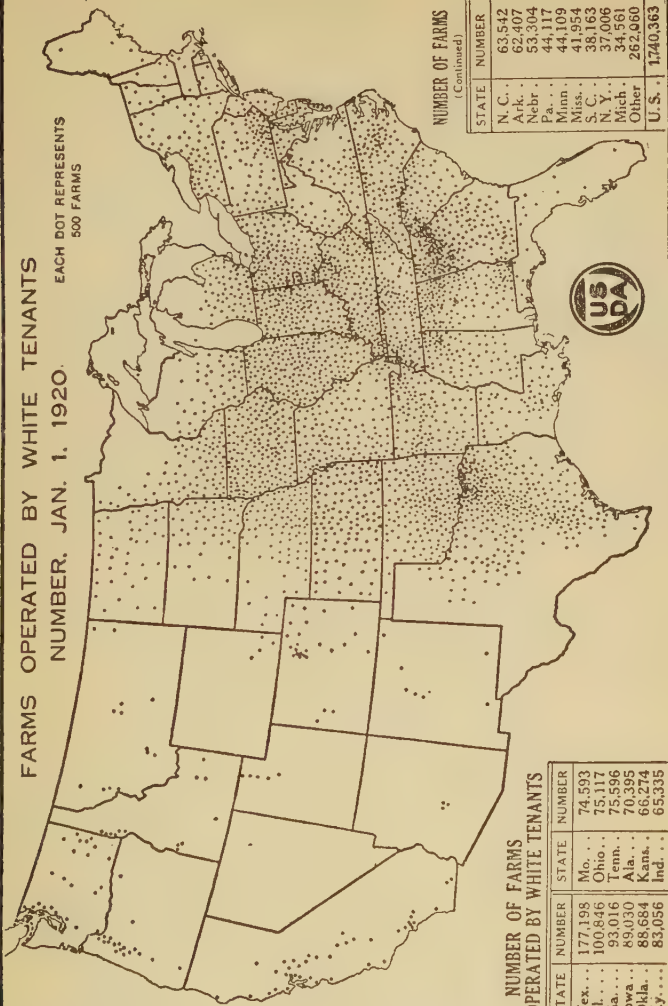
The 25-year-old class of farmers in 1890, must of course make up the 35-year-old class of 1900. The fact that 64 farms out of 100 are owned by this latter class in 1900 shows that some change in holdings has taken place during the 10-year interval. This is true because, in 1890, this class owned but 32.6 farms out of 100.

Tenancy is, therefore, one of the rungs of the agricultural ladder. It is looked upon most often as the third one—those of apprenticeship and laborer having already been taken. Certain it is that there is no sense of shame in tenantry in this country, as is true in others. Even the negro tenant has risen out of slavery when he becomes a tenant.

Another well-known rung in the agricultural ladder is the farm mortgage. Indeed, this is a far more familiar way of getting a farm than that of the tenancy way.

FARMS OPERATED BY WHITE TENANTS NUMBER, JAN. 1, 1920.

EACH DOT REPRESENTS
500 FARMS



NUMBER OF FARMS OPERATED BY WHITE TENANTS

STATE	NUMBER	STATE	NUMBER
Tex. . .	177,198	Mo. . .	74,593
Ill. . .	100,846	Ohio . .	75,117
Ga. . .	93,016	Tenn. . .	75,596
Iowa . .	89,030	Ala. . .	70,395
Okla. . .	88,684	Kans. . .	66,274
Ky. . .	83,056	Ind. . .	65,335

NUMBER OF FARMS (Continued)

STATE	NUMBER
N. C. . .	63,542
Ark. . .	62,407
Nebr. . .	53,304
Pa. . .	44,117
Minn. . .	44,109
Miss. . .	41,954
S. C. . .	38,163
N. Y. . .	37,006
Mich. . .	34,561
Other . .	262,960
U. S. . .	1,740,363



FIGURE 15

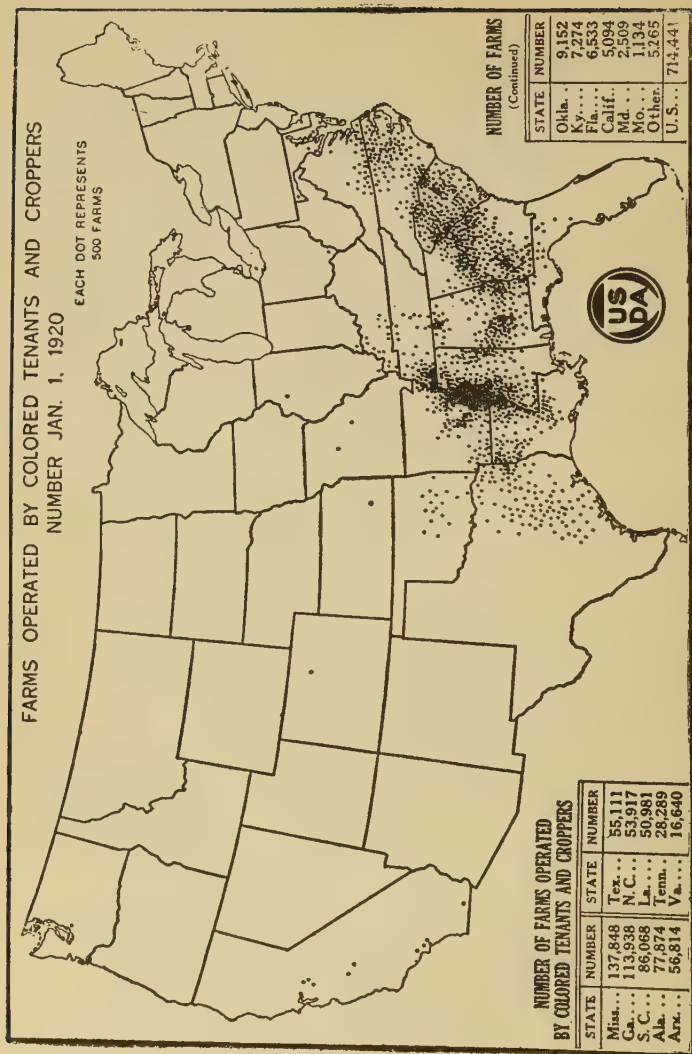


FIGURE 16

The avowed purpose of our new Federal Land Bank system, as every one knows, is to dispose of farm mortgages so that more farms may be bought. The swelling of the amounts of credit to farmers so that more farms could be paid for was the chief reason, indeed, urged on Congress for this measure. In fact, no other lawful use can be made of credit secured from these Land Banks, outside of drains and equipment, except to buy farms or to pay off mortgages. The mortgage, the census shows, is found to be an adjunct to more than a third of the farms of the country. Age data also, of the sort shown above in the case of tenants, reveal the fact that the younger farmers hold the mortgaged farms, the older ones the debt-free farms. Evidence is thus added to previous evidence as to the use made of this common credit device in buying farms.

Let us note now the chief features of this latter method of gaining a farm in comparison with those of the tenant method. Both would-be owners of farms are men of small means, otherwise neither would be a tenant nor the giver of a mortgage. The mortgage-giver is benefited through having a land title, thus getting the gain from any rise in the value of the land. He is also able to direct his farm at will, and has the urge to toil and thrift which comes from ownership. Further, he has an interest in community affairs and helps in their uplift. On the other hand, he is limited in his farming through a lack of capital, having put all his means in the farm. He, therefore, shifts along without suitable stock or tools. He also must keep up those parts of the farm which are not at once paying, such as fences and buildings.

The tenant, on the other hand, benefits through being able to put all his capital into equipment, and to farm

so as to get the maximum of returns. He leaves to the land owner all the risks of land decline and also the burden of keeping up the farm. The best rental contracts in fact show by example that this is the case. The landlord in these contracts gives the farm as his part and one half the live stock; the tenant gives half the live stock as his due and does the farming, and both share equally in the returns. The tenant, therefore, loses some of the income by being a renter, but he is able to set a high standard as a farmer. Quick money profits and craft skill and growth are doubtless with the tenant, and all farm-management studies show that he makes money through the scheme.

Professor Ely ¹ lists the following gains to good farming which come through the existence of the tenant :

First, the union of two partners, in the handling of the farm business; second, a testing ground or school of experience for young farmers; third, a rung in the agricultural ladder; fourth, continued tillage of farms whose owners wish to retire; fifth, farm opportunity for would-be owners too poor to buy.

A system of farming would lose much in the opinion of this author without its tenants. In the interests of the food supply, therefore, our efforts in respect to land tenure are clearly laid out. We should strive toward bettering the status of the tenants rather than toward removing them.

FARM SIZE

A second question which arises in looking into the farm business is that of size. How large should a farm

¹ *American Economic Review*, Vol. IX, Supp., p. 180.

be in order to yield the best money returns? This is a phase of the Big Business dispute which has raged with us for a generation or more as to the proper size which a railroad, a factory, a store, or a bank business should have. Many of the effective points made in this famous dispute may be used in the farm-size debate also, since, at bottom, the two problems are alike. In both cases it is the question of savings, since a saving is the umpire as to business size in any pursuit.

Let us take up the facts with regard to large or small sized farms first, and after that the reasons for such a state of things. The size of a farm business we must say, at once, by way of preface, is the amount to which all the farm factors are used in an undertaking. The amount of use of a single factor, such as land, for example, fails to measure fully the size of a farm, in spite of the common belief to the contrary. A 160-acre general farm gives, often, as a matter of fact, a much larger farm business than does the huge western cattle ranch of many acres. So also a violet farm of a few glass-inclosed yards is often a much larger business than the full-sized homestead.

Many ways there are of measuring the size of a farm business, though all are not of equal merit. In the cotton belt, for instance, farm business sizes are measured by the test as to whether they are "one-mule farms" or "two-mule farms"—this number varying as the negro "cropper" is able to handle one or more of these animals. The amount of farm business which one family can do is the measure also which gives us the well-known "family-sized" farm of the corn belt. The outlay of capital, too, which a farm business requires is a much-used measure. This has the positive merit of being the test used in other

pursuits and hence is valuable for comparative purposes. Without doubt, however, acreage in spite of many flaws is the most common method by which a farm business size is stated. It has the advantage of current use and therefore is in the main our best measure. The census indeed uses both capital value and acreage as its standards, but the variable dollar of the War period by which this capital value was shown gives only a hazy sense of amount at the present time.

Let us notice then from the census reports the number of acres which make up the favorite-sized farm business in our country, keeping in mind, however, that business and acreage are not strictly the same. Here at once we find that the most popular farm size is the 160-acre farm, this type having the number of 1,500,000 counts to its credit. To realize that this is no paltry sum it should be noted that this number equals a quarter of our entire supply of farms. The farm size of this sort has had this popularity in each census thus far on record. Its claims to favor are further backed by the fact that the typical farm of this country is the slightly smaller one of 147 acres. This is the customary farm of the corn belt, and is as a usual thing a general or diversified farm.

The sizes next in favor are those of the 80-acre farms of the northern and eastern states which number roundly 1,400,000; and the 40-acre farm size, also of some 1,400,000 in number, and found mainly in the South. These three classes of farms make up two thirds of the farms of the country at the present time. Since this has been the case too in all censuses thus far taken, farms of these sorts may be looked upon as our standard types.

The contrast here between farm sizes and business sizes

in other pursuits, one sees at once, is striking. An age which has seen the railroad lines of the country grow into systems, the factories joined together into business "com-bines," and business blocks mount to skyscrapers, finds the favorite farm sizes the same as were those of a half century ago. Surely, no monopoly nor "big business" trend is to be seen in the case of farming. Some economies there are, indeed, which are not enjoyed by farming but are open to business in other pursuits. And, unless economies can be won, as every one knows, no valid reason exists why a business should change its size.

Five savings, at least, there seem to be which are made use of by "big business" in other lines which are not open to farmers. These may be described in order, as follows: first, the lack of mobility of the farm business. Farming must be carried on in the place where nature decrees whether favorable to markets and labor supply or not. Other business men may move to favored spots, but not so the farmer. Second, the big successes in other lines have come about through the organizations of capital which have taken place but not much capital is or can be used upon the farm. The average American farm, as given in the census reports, aside from land values, has a capital outlay of \$3,581. Now, since the area of such a farm equals 147 acres, this gives a paltry sum of \$24.16 per acre as the amount of capital which is used in farming. The use of capital on an acre of land in manufacturing is huge in contrast to this.

The two best-known economies of the city big business (our third and fourth examples) are savings which are totally denied to the farm. These are the economies of using experts and the savings from by-products. Owing to the control over farm labor held by the seasons, any

thorough-going division of labor is out of the question in this pursuit, not to mention the use of experts. As a craftsman, the farmer loses the effective saving of himself which comes from being a specialist. His savings from by-products are slight, too, in amount, and no great outlay is made to take care of them. Fifth, and last, the farm business fails in lending itself readily to routine management. The details are too many and too varied in character, and the farm factors are too much under the control of nature for the use of routine methods in this pursuit. Without this directive arm, however, farm oversight must be personal, and the limits of the possible to a manager are soon reached. Farm trusts, "combines," or "big business" have but little chance therefore of success in the face of these certain obstacles.

The group of farms which showed the greatest business stir during the decade of our study (1900-1910) were the huge 500 to 1,000 acre farms of the west. This group of farms took first place in the total increase in value of all kinds of farm property during this time. They had first place, too, in the adding of acres to the area of tilled land per farm. They were second best, further, in the rate of increase in numbers over any of the other groups—following in this respect the very small farms of the east. The fact that this active group finds its members in the western plains gives the reasons for many of the foregoing counts. New farms, such as these were, had ample room for the advances which older farms had made for themselves many years before.

Farms of the 20-acre size are the most prolific of any of the various groups from the point of view of offspring. These have more than doubled in number since 1890 and

² United States Census, 1900, Vol. V, Part I, p. 143.

their rate of increase is still very rapid. It is not probable, however, that this is more than a passing phase, nor that vast changes are foretold in the farming world by the rapid increase of 20-acre farms. Indeed, these farms at present are more numerous in truck-growing regions than in any other.

The complaints against the small farm are fully as strong as are those against the big ones which we have noticed. As we have seen, the responses from soils to tillage have a natural limit owing to the very nature of the soil itself. The limits to the profitable tillage of soil, owing to the great law of diminishing returns is, indeed, much short of the total ability to respond on the part of the soil. We have seen, too, that soil is only one of the factors which are joined together to yield a crop. Further, in a new country like this, it is the least costly factor, and should be used freely, when balanced against the more costly labor and equipment factors. For these reasons small farms are doubtful profit-makers to the farmer.

The plain and admitted debt of man to the farm for his food has bred many beliefs and notions as to how this art should be carried on. Because it is the oldest and most widely spread of industries, every one, seemingly, has some theory about farming. This is a place without an equal, perhaps, for trying to clear up some of the conflicts in these many theories. A few lines will be given up, therefore, at this point to the explanation of a difference in viewpoint which causes, in the main, most of these confused theories.

The point of view of the city man and that of the farmer are the two opposing views in question. These are the two from which most of the thinking is done and each is contrary to the other. The first of these stand-

points frankly desires large yields per acre, favors intensive farming and takes measures at times to promote the "back to the farm" movement. Indeed, a publicist having the good of the country at heart rather than the good of the farmer might properly join with the city man in this last. The farmer looks at all these things from the other standpoint. The "back to the country" shift means more business rivals to him, intensive farming is costly farming, and, to the farmer, large yields per acre costs him more than they should in order to give a profit. At the least, large yields per acre will add to the market supply and thus lower the price. These conflicts of viewpoints may be brought into harmony, it is true, but the way to do so is not easy, and, in the meantime, each has become the rallying point for a large amount of class feeling. At any rate, the particular one of these two viewpoints which is used should be plainly kept in mind when opinions are offered upon farm problems. In no other way can these opinions be made true and tenable.

From the point of view of farm organization, the facts are strikingly strong against the small farm. The chief fixed factors of cost in a farm business which limit profits are land, buildings, equipment, and live stock. The need of these factors in a farm make-up is absolute, and their degrees of use by the various-sized farms in this country are clearly shown in the following census table. The amount of use of each of these factors is told in the census tables by the percentage of value of the whole business, which each one holds. The record for the farms of the United States is as follows:

FIGURE 17.—CAPITAL OUTLAY ON DIFFERENT FARM SIZES

Size of farm *	PER CENT			
	Land	Buildings	Implements and Machinery	Live Stock
10 acres	48.4	38.7	3.8	9.1
20 "	55.1	29.9	3.9	11.1
40 "	58.7	23.6	4.3	13.4
80 "	61.5	21.3	4.2	13.0
160 "	64.4	18.0	3.8	13.8
200 "	67.5	16.0	3.3	13.2

* Twelfth Census Report, Vol. V, Part I, p. 51.

One may see at a glance here what is wrong with the small farm. Since land and animal products are the direct sources of farm income, the small farm business has too little given to land and live stock in order to make a profit. Too much is tied up in buildings and machinery in order to make a paying business. In fact, in order to get equal returns per dollar from a \$5,000 outlay in a 10-acre farm with those obtained from the same outlay in a 40-acre farm, a near miracle must be wrought. Nothing less than a much more productive use of land and live stock than is customary in farming must be found in the small farm in order to give these returns. This is a discovery which is hardly possible. Loss occurs of course because the 10-acre farm absorbs so much of the \$5,000 for nonprofit purposes—buildings, machines, etc.—that little is left for income-getting purposes.

Farm running expenses also show the same relative bigness in a small farm business, when compared with a large farm business, as is shown in the organization expenses. Taxes and insurance are probably proportionate to the size of the farm business whether large or small. Feeds, manures, and spraying materials also bear a close equality. Labor, however, both of man and team, is more

costly on small farms than on large ones. This is an item of much import, too, since, as we have seen, labor is the big expense in American farming. Both man and team labor are in most respects fixed charges to a farm. This expense can only be carried, therefore, with profit by keeping both steadily at work. But the small farm lacks the scope and variety of operations which are needed for doing this and much loss is the result.

The evidence of experience is also in favor of the large farm. Nowhere else for so long a time has farming upon a large scale been carried on as in England. Nowhere else, too, has such an able type of farmers been developed as in this same country. We find no other place upon the earth where so many of the features which make up the best aspects of our farming have sprung up as here. These are, namely, our breeds of animals, our methods of tillage, and our field crops. Both from the points of view of handling and of experience, then, the case is strong against the small farm.

FARM PROJECT PROGRAMS

The farmer like every other business man wishes to keep all his resources busy, since by doing so he makes the largest gain. He arranges his farm with this in view, and it may be said in passing that this detail of putting a farm together in the right way is a long step toward gain. The census shows the make-up, for example, of the typical Iowa and the typical Massachusetts farm in this respect, and the records are as follows:

FIGURE 18.—USE OF CAPITAL ON FARMS

States	Farm value of typical farm	Land and land improvements	Buildings	Impl'ments and Machines	Live Stock
Massachusetts	\$4,843	\$2,305	\$1,885	\$234	\$ 419
Iowa	8,023	5,497	1,053	253	1,220

It will be seen at once from this table that almost half of the value of the farm on the upper line is laid out on nonmoney-making elements. Buildings and machines on the farm give no cash returns and, therefore, are not profit-makers. On the other hand, the Iowa farm has less given to these two elements than has the Massachusetts farm, although the total value of this farm is nearly twice as much. The Iowa farm is the case of a good outlay; the other is not.

The farm as a business belongs to that variety which is known as "a business of large fixed capital." This is true because of the large outlay which must be made for land, buildings, stock, and tools as compared with working capital and is therefore fixed or sunk capital. The yearly working capital of a business of this sort would need to be added together for many years in order to equal in amount this fixed capital outlay. A railroad is the classic example of a business of this sort with large fixed capital and small working capital. The working capital of a railroad bears a ratio to its fixed capital of 8 to 12;³ that of the farm as given by the census⁴ of 1 to 6 or 10, so that clearly from the point of view of capital outlay the farm is a part of the same group in which the railroad is found.

Businesses of this sort have certain management features which are typical. One of these grows out of the fact that the bulk of the expenses of such a business must go on whether the concern is idle or worked. On the farm, for example, there are taxes, interest charges on land and capital outlay, and the upkeep of the farm, and these are large and accrue whether farming is done or

³ Taussig, *Principles of Economics*, Vol. II, p. 393.

⁴ United States Census, 1900, Vol. V, Part I, p. 122.

not. Businesses of every sort further choose lines of output which will give them the biggest cash returns possible, since it is from returns, of course, that they make their profits.

Now concerns with large fixed expenses, in addition, find it worth while to use lines which give very small returns—indeed, only the working capital costs need to be met to make these worth while. This is true because the big expenses are going on anyway, and even an income which but little more than pays its costs is better than none in helping to bear the big expense. Farmers outside the corn belt, therefore, often grow corn even though the returns are but little more than will defray the bare seed and tillage costs. The field would not have been used at all otherwise, but its fixed expenses would have kept on. These last are not fully met by the corn crop, it is true, but the little which the corn crop does give is better than nothing. Whether the farm projects pay large or small, therefore, the farmer must use both the most profitable and the less profitable kinds because he wants as large a gross income as possible. Good farm management requires a greater variety of lines in the farm business than is often found in any other kind of pursuit.

Still another rule must be followed by the farmer in picking out the season's enterprises. This is the one that projects must not be chosen, which will all claim the farmer and his facilities at the same time. Unless this rule is followed there will be badly crowded periods of the season and like periods of slack at other times. The farmer avoids this evil by noting that his enterprises fall into two groups, namely, those which rival each other for his care and those which do not. The members of the first group are called competing projects, the others

are called noncompeting or, more often "side lines." Cotton and corn are good examples of the first group, while poultry raising and maple-sugar making stand for the other. The farmer like other business men must get the maximum of use from his outfit so he handles as many of these "side lines" as he can—the more the better—up to his capacity. The plan for the competing enterprises is different, and the rule to be followed here is not so obvious, but the few words which follow may make it clear.

The seasonal needs of all farm projects cause the planting and the harvesting feats to be two events which are widely separate in time. It is seldom true that the farmer can begin a line of farm production and go on with it until finished, as the factory owner or the merchant may do with their projects. Seed time and harvest and time of tillage must be had by all farm projects. These are widely apart, are at different times with different crops, and are of varying degrees of importance when they do come. The jumble of conflicts for the farmer's attention, which is brought about by these crop needs, however, may not be avoided in farming since each enterprise must be given its due meed of care. The problem of how to handle the competing projects upon a farm arises from this situation and will now be made clear.

Farm projects differ widely in the extent to which they compete. Corn and sugar beets, for example, rival each other in most places at all periods of their growth—planting, tillage, and harvesting—so no farmer can do much with the one of these, and also do much with the other. Most farm crops have times in their making which are more vital to success than other times. These are called the critical periods and are found in wheat growing at

harvest time, in corn at tillage time, and in live stock at finishing time. Truck growing and poultry raising mismatch each other flatly because the critical periods in both these lines come at the same time. On the other hand, winter wheat conflicts but little with any other crop either as to seed time or harvest, and, for this reason, it is often grown even in regions where it is not well adapted. It fills up the farmer's program of possible choices and gives back an income which otherwise would be lost. Further, it does not prevent care from being given to other enterprises of profit.

Winter stock feeding also is popular both because of the large profit which may be made from this undertaking and also because it is done at a time when no other enterprise seeks the farmer's care. It is really a side line. Its worth to a farmer in respect to money income may be arrived at as easily as a merchant finds out the net income on a line of goods. The first cost of the live stock, the finishing costs in feed and labor, offset by certain by-products, when added together and taken from the selling price, gives the farmer's profits as clearly as they may be found in any other business. It is the easiest account keeping, however, that the farm affords.

Competing lines upon the farm have the nature of options, owing to their rivalry for the farmer's attention, and, as a result, the one which gives the most profit will be the one naturally chosen by the farmer. Complete cost keeping is not possible with a farm project of this group so that something similar to "dead reckoning" must be used. Indeed, the best measure of the probable profits which may result is the excess of income, which the chosen line gives, over its next best option. Highest gross receipts will come from choosing the projects which

have the biggest surpluses over their alternatives and the wise farm manager follows this rule. Naturally, the farmer's program is made very changeable by this fact. A shift in market prices, a change in the labor supply, a variation in the weather and the rejected enterprises of last year become the main ones of this. The use of rotations in a field system simply prolongs the time period, but does not alter the rule of choosing the options which pay best. It is a flat choice between yea and nay.

The choice of farm projects, then, lies in seeking the ones of the competing lines which give the highest profits; of the noncompeting enterprises, as many as can be handled. These hit upon, and the farm program for the year is set. The maturing of the projects remains still to be done, but this is the field of the practical craftsman or farmer from whom a first-hand knowledge of soils, weeds, grains, weather, stock, machines, markets, men and processes is needed. Farm craft is rich with the arts and devices by which the products of a farm enterprise are made larger or their costs made less, or both. This is farm practice, however, instead of farm management, and no attempt at going into this wide technical field is possible here.

Farm management surveys have done much in recent years to clear up the problem of how to handle a farm. These surveys have been carried on by the various agricultural colleges and by the Federal Department of Agriculture for more than a decade, and the records from more than 50,000 farms are now at hand. These surveys seek light as to the area farmed in each business and how the farm capital is laid out. The diversity of products and the yields from each are next looked into. Under these four main heads—farm size, capital outlay, diversity of pro-

jects and quality—may be gathered the data which shows good farming or bad. The teachings of these surveys, no matter where they are made, are much alike. Large farms there must be, all agree, in order to show a profit. Buildings and tools must not absorb too much of the capital is a second rule. Of course, a large yield from every line is desired, and there must be a diversity of projects if the largest gross income is to be obtained. In addition, the farmer and his facilities must not be claimed at the same time by all his undertakings. Our complete science of farm management will be some time made up. This can be done when these surveys have covered all the farms of the country, and the stories of all have been harmonized each with the other.

CHAPTER VII

FOOD DISTRIBUTION OR MARKETING

AGRICULTURE may have had the best of success in the growing of farm stuff, but there is still lacking a food supply until some one gathers up these products and allots them to the places where they are to be used. This is the work of the middleman, and he often transforms products en route as well as moves them. The food-maker, whether he mills wheat, kills live stock, or turns beets into sugar, is equally a middleman with the local shipper.

SPECIALIZED FOOD PRODUCTION

The most simple reason for the need to allot foods in this way and also for a trade or middleman class is the widespread custom of setting apart fixed places for the growing of these things, which is now the rule. That spices can be had to advantage only from the East India Islands, coffee from Brazil, bananas from the tropics, wheat from the wheat belt, and citrous fruits from California are truths which amply make clear this fact of specialized places and products. Indeed, the shrinking of the earth's area by bettered means of transport and thought transfer shows clearly the fact that a world economy requires the getting of everything at the place best fitted for yielding it. Along this line, without question, lies man's greatest chance to save labor. One of the stock examples used by writers of texts in economics, in fact, is to ask their reader to locate the foods on his breakfast

table, as to their places of origin. Surely the man of to-day has the world view in respect to his foods if in nothing else.

The setting apart of local places on the map for food-growing purposes often turns upon the merest shade of detail. Often it is a matter of the smallest variation in natural conditions or in growth needs of the food-bearer. The ravages of the tsetse fly upon live stock in South Africa made farming of doubtful promise there until the coming of the tractor gave a farm power which was safe from these ravages. The usual westerly winds which blow over Lake Michigan make the east shore of this lake a fruit belt, while its other shores are sterile of fruit in the bulk needed by trade. The warm nights, too, of the corn belt are as selective as to the proper crops to be grown there as are the dry days at harvest time in the wheat belt.

This state of things by which the world has come to be divided out into special places for special products is very modern. Adam Smith in his far-famed *Wealth of Nations*, written but little more than a century and a half ago, could give no better reason for trade than that "man has by nature a bartering and truckling disposition." In the short space of time shown by this interval, nearly every well-known country has become quite fully given up to the output of certain products. This is in fact so true that maps of the surface of the earth can now be drawn as truly from the point of view of regions of special products as from the point of view of the boundary lines of nations.

Without doubt the growth of the railroad and the telegraph and the steamship has had much to do with the opening up of places of special products. In past

years a new area of food yield could be brought out only when natural means were at hand with which to carry on trade. "God kindly caused a river to flow beside each large city" is one explanation of this great truth. Now, the likely locality is first picked out and, after its merits have been proved, railroads soon follow. The way in which railroads are of use to these places of special products is well shown by this graphic picture of their services.

The quantity of food material carried by the railroads of the United States is so vast that it staggers the imagination. In a single year more than 116,984,000 tons of foodstuffs were hauled over the railways of this country. Of this startling total more than 52,000,000 tons were grain. Of animal products almost 30,000,000 tons were transported by rail. This mighty burden may be separated into four classes: 15,000,000 tons of live stock; 2,500,000 tons of dressed meats; 2,500,000 tons of other packing house products; and 9,000,000 tons of poultry, eggs, milk, fish, and game. In the same year our railroads carried more than 17,000,000 tons of fruits and vegetables and 9,000,000 tons of flour.

If you wish to get a better understanding of the great task of carrying food, take your pencil and reduce these tons to pounds. But you must not forget that a considerable amount of foodstuffs used or produced in this country are not shipped by rail at all, but carried by wagon, by truck, and by boat.¹

FOOD DEMAND

On the other hand, the world-wide use of all the staple foods tends everywhere to become the rule. Sugar, for example, is a food which, within a hundred years, has been extended from the tables of the rich and well-to-do to those of all classes of people everywhere. The use

¹ Cressey's *Story of Foods*, p. 22.

of wheat bread is now almost universal—all peoples that can afford it make use of the wheaten loaf. The term “world market” is, indeed, rightly applied to these foods, since it stresses truly the fact that they are everywhere in demand. The reasons for this world demand for the same foods lies at bottom in the “catching” qualities in human wants and desires. These great motives to human action have grown beyond number in late years, and no signs of falling off with regard to their future growth is anywhere to be seen. They seem to grow by what they feed upon. They multiply upon one as if by chance, and any new fashion spreads like an epidemic. A new fashion in dress, for example, is said to require only one year before it has crossed the ocean to our eastern shores, another year and it has reached our middle west, and in another year our furthest frontier has employed this new style.

Wants are not only keen as to their own degree of satiety, but they often become the centers from around which a cluster of new wants spring. Our staple food, bread, is a case in hand which shows this truth. This most common of foods is seldom or never eaten alone, but with it there must be butter, or preserves, or gravies, or milk or one or the other of several more associates. But, each of these, too, in turn must be seasoned by proper flavors or lures so that about the single item, bread, a wide range of materials is grouped. In addition, wants often take on a showy or imputed air through being the basis for social regard or esteem. This was well put by Benjamin Franklin in the pithy saying, that “in matter of dress it is not our own but our neighbor’s eyes which are costly to us.” In fact, a common means by which place is held in society is the standard of living kept up

—standard of living itself being defined as the range or scope of wants which are by custom gratified. "Conspicuous luxury," as this is named, when carried to excess, has become indeed one of our well-known social forces.

Human wants for food, as shown on an earlier page, are not limited alone to its uses as nutriment. Food is properly used for hospitality, for social, for decorative, for curative, for religious, and for many other purposes. Human desires for services of these sorts from food are, at times, no less urgent than they are for the more common services given by this great necessity. Food desires, in addition, whether for the nutritive or other uses of food, are the foci of interest to the food dealers of all groups. With the aid of artistic cookery, expert chefs, food literature, and laboratories, together with devices for processing, packaging, and preserving, these tradesmen have gone a long way toward making food use no less than a vogue or style. Indeed, they have also made fully true the oft quoted adage in the up-to-date food trade, that "it is not the food which costs but the service which goes with it."

The food tradesman in fact finds a buying public whose members have widely varying incomes, and, as a result, widely varying buying powers. The buying power of those who hover along the line of the "submerged tenth" permits them but little more than bare nutrients in their outlays for food. On the other hand, the ampler means of the "swollen fortune" class allows its members an outlay for food which procures many other uses than those of mere growth and energy.

The food dealer reaches both of these groups and also the classes which lie between in the way which is of most profit to him. He knows, for example, that the highest

price which the member of the "submerged-tenth" class can pay for the needed 3,000 daily calories of growth and energy elements is a mere mite to the sum which one of the "swollen-fortune" type can pay. This is true because of the disesteem which is born of having plenty. "Enough is as good as a stomachful," is a homely adage which applies to money as well as to other things. In truth the "swollen-fortune" favorite could pay many times the market price of the 3,000 calories, without hardship to himself, owing to his greater buying power in having much money. To reach these classes with the higher buying power in the fullest degree has, therefore, been a great task with the middleman.

Surely, the thing cannot be done through trying to increase the amounts sold, since the rich man can eat no more of proteids, fats, and carbohydrates than can the poor man—ofttimes not as much. But the other uses to which food may be put—the æsthetic, the palatable, the social—are uses which the well-to-do are willing to pay for. It has been to the food dealer's interest, therefore, to see that the rich pay for these in the full degree of their surplus buying power—the surplus which fits them as members of the "swollen-fortune" class. The attack is made in fact on the part of food tradesmen and food makers in a very skillful way. Through the simple scheme of varying all foods into many grades, blends, and styles by processing, packaging, preserving, patenting, trade-marking, and other means of fixing identity the onset is begun. Each variety is then given its separate price—a price which by no means ignores the well-known rule of charging "what the trade will bear." Indeed, a new product has been created by these means and, therefore, a new price is the natural thing.

It is, in fact, to reach these surpluses of buying power that we have our fancy breads, and cakes, and hosts of preserves and canned meats, rare dairy products and fruits of such endless kinds. No one may think, however, that a vast amount of social benefit has not accrued by such sales efforts as these, even though it must be paid for at a stiff price. The whole range of uses to which food may be put has been reached in this way, and food has had its want-satisfying power added to many times. The query comes up naturally at this place as to how great would be the falling off in the use of farm stuff should nutriment alone become the only thing sought for from food. The backwash of unsold products to the farm would be much greater, one must believe, if this were the case. But the middlemen activity, which finds a way to make the well-to-do buy the largest amounts of food possible, truly broadens the outlets which the farmer needs.

This attack on the buying power of the well-to-do by the food dealers is much helped by the modern method of advertising. Advertising is, indeed, but one aspect of the salesman's task. Its purpose was, in former years and is yet in the main, to tell the buyer what there is for sale, which will satisfy his wants. It is still one of the ends of advertising to teach the consumer new wants as well as to make more keen those which he already has. But modern publicity methods go much beyond this, and seek a hypnotic control over its subjects, which is all too often attained. The constant and endless urging of some phase of a thing upon the public notice, or, often the urging of the mere name itself is the method of procedure. The doing of this will sooner or later spellbind the desired customer in its favor much as the forest deer is riveted by a glowing light in the dark.

The buyer's mind is not so much touched by such an appeal as is his capacity for suggestion, which is caught by the fixity of the lure. A governor was recently chosen in one of our oldest states, who got his excess of votes, not on account of any real fitness for the office which he sought, but because of having a face and name which had been seen daily in the newspapers for many years. They had served as the trade-mark, during a long time, for an article of dress which the candidate sold and which was widely used. Every voter felt, therefore, in personal touch with the owner of the face and name, and, therefore, a duty to be friendly with his vote. That appeals of this mesmeric sort attain their ends is made fully evident to any one who scans the food display pages of modern magazines—those, at least, of the home and family type. Thousands of dollars are spent on each issue of prints of this sort to attract our notice to breakfast foods, prepared meats, soups, etc., no one kind of which is any better than any other kind. On the other hand, all of every kind are simply offered in this way to whet the wants and open the pocketbooks of those who can afford to pay.

Middlemen also make a point of letting food go upon credit, since much more can be sold in this way than if cash were always asked for. They also provide a costly telephone and delivery service, and a prompt and ready clerk service must be at hand that the customer's merest wish be quickly met. The cost of all this comes, of course, from the surplus buying power of the consumer, but since he pays it at will—may take it or let it alone—there is no real complaint to be made from this point of view. The farmer food-grower, on the other hand, can hardly be too grateful for the fact that these fine sales efforts have enabled him to dispose of his surplus products. Professor

Nystrom, in his very able book on *The Economics of Retailing*, answers the foes to "intensive salesmanship" methods in the manner shown below :

The question may be raised at this point as to whether this (intensive salesmanship) is in the interests of the consumer and of society at large. In answer it may be pointed out that desires had to be aroused and intensified in order to introduce into general use practically every article of modern convenience and comfort. It was salesmanship that put the sewing machine, washing machine, and vacuum cleaner into the house. Salesmanship has introduced practically all great improvements and devices into every line of business and industrial life. Without salesmen our present material development would be inconceivable. Salesmen are the present-time teachers of the people in the arts of progress, and, as such, rank with the schools and the press.²

TECHNIC OF DISTRIBUTION

Turning now from these general aspects of a distribution policy, we take up the study of how the sharing of farm or food products is really made. The direction of the lines along which these products move will be taken up first, and after that the methods by which they are moved. In its trade route aspects, the marketing of food moves, of course, in a general way from the open country toward the towns and cities. The farm product, in other words, has reached its haven—has "arrived," in brief—when it reaches the city or town. This is the end for which it was grown. In doing this, there is followed as far as the great mass of food is concerned, a radial plan of direction. Farm or food products aggregate and then radiate. Food is gathered up into a few great centers and is then sent out everywhere. Given more fully in

² Nystrom, *The Economics of Retailing*, p. 87.

detail, food in the main is first brought together into small rural centers such as villages, towns, crossroads, etc. Thence, it is shipped to larger assembling places, such as the big cities of the middle west. From these, it is reshipped to smaller storage places—large towns and small cities—and from these to the places of final use. Oftentimes, there are many types of midway places instead of the one class only between these grand centering places and the growing and buying extremes. At all places, in addition—villages, towns, and cities—more or less of final use of products take place—these failing, therefore, to go the entire route.

Chicago, Minneapolis, and Kansas City come to the mind at once as types of the larger assembling places for vast amounts of foodstuffs, little or none of which has moved directly from the farmer. Hosts of little stations have been the starting points from which products have begun their travels after leaving the farms. Numerous towns and small cities have been the focal points at which the second stage of the trip has ended. From these there have been transshipments to the large cities, told of above, whence a reshipping process begins to all points of the compass. Food is passed in this reshipment through cities of larger and then of smaller sizes, shorn in amount as the needs of these cities require, until what is left comes at last to the final market.

Much bitter complaint against the seeming wastes of this method of radiation has been made in recent years. Rural hamlets have seen their products shipped to the large cities only to be sent back again in the courses of trade to the place of origin for final use. Products of all sorts have paid the tax of "cross freights" to a serious extent for this privilege of free movement. Some zoning

plans have been proposed as a remedy by which a fixed area would be laid out for certain farm products within which the growing and use must take place. During the War a few regions, indeed, kept up zones of this sort and gained some fame as the result of their success. The War-time food control, too, made use of the zoning system both as a means by which railroad service would be saved, and, as a means to keep certain regions supplied with food.

The radial plan of dividing out the bulk of our food products, however, must without doubt be made use of, when the division of labor scheme is given such free rein, as is true among us. Commodities are more and more the products of set places favored by nature for the yielding of these certain things, and the efficiency which comes from such production is too precious to be given up. How, then, may these products be sent to their final user by the best method? No one would claim, for example, that each article of food should go straight from its grower to its user, though the partisans for the so-called "direct marketing" are at times not far from this stand. A moment's thought will show, however, that this would mean at certain times of the year the actual crisscrossing of the earth's surface with stuff passing from farmers to city dwellers. These two terminals, as every one knows, are laid down with so little system or order relative to each other that no other result could possibly take place. Some compromise with direct marketing like this, then, is forced upon us, and any compromise causes at once the plan of gathering and dispersal—in short, the radial plan.

The radial plan is, indeed, the one which must always be used, when widely spread units are to be picked up and carried in volume to isolated and separate stations—a

situation which is true of a food supply under the scheme of division of labor. The mail business of all peoples, the world over, is carried on by governments after this plan. Letters, papers, and packages, though vastly easier to handle than farm products, must be brought together first in large cities, before being sent out again to their widely scattered places of address. In our recent feat, too, of mobilizing an army for the Great War, focal places to which recruits were sent, and from thence marched, were found to be needed. Although in this case, live and mobile units were the objects of distribution, soldiers were not asked anywhere to move directly from their homes to the battlefield in France. Quite the contrary, local places were asked to receive squads, then to forward these to some larger centers from whence they were again redirected, this time to the front. Food sharing under the terms laid down by nature can hardly hope to escape this costly and awkward plan of movement, much as some other way is desired.

Students of marketing have found out also that for the division of the mass of food products—all, indeed, except that minute part which is sent to its users directly—some seven or eight steps or processes are needed. These operations are not always carried out by a distinct and separate set of dealers—often, in fact, all are done by every kind of middlemen. But, under all conditions where food enters the regular courses of trade, these seven or eight services must be done by some one. Marketing exacts these basal operations in as rigid a way as farming exacts the tasks of seeding, of tillage, and of the harvest; or, as baseball exacts the feats of batting, of fielding, of throwing, and of catching. Even if government, or if coöperative societies should take over the work of food

sharing for the nation, as is urged by some partisans, no one of these acts could be left out. They would, indeed, be as much needed under such control as they are under the present-day private middleman method.

These basal tasks may be named in the order in which they are commonly carried on when moving the food product from its point of origin toward its place of final use. Given in this order, they are:

1. The assembling feat. All foods undergo constant assemblings and re-assemblings at the hands of middlemen. Even if no natural law of trade exacted this, as by our radial scheme of distribution it does, the savings which are gained by being able to make carload shipments under our present plan of railroad rates, would lead to the same end. The rural local shipper gathers the products of the near-by farmers together that he may have volume enough with which to fill cars. The wholesaler gathers that he may have the bulk of goods from which retail traders may draw at all times and in any amounts. The retailer assembles in order that his patrons may be supplied in quality and quantity as suits their desires. Even, indeed, under the so-called "market integration plan," some assembling would have to take place. Though this is a plan by which the growing, the transforming, and the marketing of products are carried out under the same owners and control.

2. The storing operation. In a world of marked seasons for the growth of food, but in which daily consumption takes place everywhere, some agency must be used to adjust the seasonal supply to the year-round demand. This is the work of the grain elevator, the cold storage plant, and the warehouse and all their kind. With the larger tendency, which is coming in among food users to

wipe out seasonal limits in the use of foods, the need of these storage agencies becomes more and more keen. Man must have in modern times fresh fruit, vegetables, eggs, and dairy products, daily, the year round, and these can be given him only by suitable storages.

3. The carriage feat. Storage, as we have seen, overcomes the lack of harmony between the times of food growth and the times of food use. The railroad and steamship do a like service in mastering the lack of identity between the places of food supply and the places of food demand. The most simple mind grasps at once the fact that with food growth separated out by climates, soils, and rainfalls, to set places, while food use is universal, some scheme of transfer must be hit upon. Things must be moved from the places of plenty to those of scarcity, and this is the service of the railroad and steamship. "On the whole," says the report of the Federal Trade Commission, "the average distance between the producer and consumer of food in the United States is more than a thousand miles."³ In earlier times, it is true, only the luxuries of man's use could be so moved. With the coming of these two great carriers, which we have named, however, all products have become trade stuff, and enter into commerce. The putting out of every product to the place best fitted to grow it as a result of this fact has helped our total output almost beyond belief.

4. The grading operation. Grades and standards of all sorts are attributes of the language with which buyers and sellers speak to each other. Consumers must have exact kinds of foods and exact quantities, and these are not given as desired by nature. Nature, indeed, has her methods of selection by which we get species and varieties,

³ Wholesale Marketing of Food, p. 188.

but these are seldom the groupings asked for by the market. To give us the group and classes asked for by the market, some sort of grading by man is, therefore, needed. Middlemen of all sorts perform this grading feat, since the standards of demand vary with different markets, and all are going through constant changes in all and every market all the time.

5. The financing operation. Like shadow and substance, like photograph and original, every food which enters our trade system has its measure in terms of money. Some one has been obliged to provide either in cash or credit the money equal of every article of food. A middleman of some sort is usually the one who does this and his use of money in this way prevents its use elsewhere. Sacrifices of this sort like all other sacrifices must be paid for in some fashion, and the costs to the public of this use of the middleman's money makes a sum of no small amount. Through the help of good credit agencies, some food products may be said to finance themselves, so far as the middleman is concerned, since they can be borrowed upon until the time of final sale. But, so long as a money system is made use of in the marketing of our foods, an added cost will accrue to the buying public as the result of paying for the service of this financing operation.

6. The salesman's task. This may be said to be the focal feat toward which all the others tend. The whole purpose of all the other work thus far discussed has its end and aim in the final change of ownership which takes place when the product is sold to the final user. But a food product has been sold, usually, many times before it reaches the final consumer. It is plain, therefore, that no small part of the food marketing process is taken

up with this matter of making sales. Sales are, indeed, the stuff of our daily economic life. All middlemen sales are at bottom, too, like the final one, in respect to the equivalent offered in exchange, the forces which fix the sums of the equivalents offered, and the actual selling means which are made use of. In a buying and selling system of living such as we now have, the sales feat must always be regarded as one of the most notable facts of our whole economic order.

The groups of tradesmen by which these processes are carried on—the well-known middlemen—will be told about in the next chapter where they will be described separately from the functions which fall to them. The machinery of food distribution, the outlines of which have just been shown, is by design given a separate place in this account from that of its human operators. Food marketing was thought at one time to be fully told about when the work of the local shipper, the wholesaler, and retailer was set forth in full. Government food control, during the War, proved that private middlemen of every sort may be set aside, if desired, and the sharing of food still go on. The machinery of food marketing—gathering, storing, grading, moving, etc., on the other hand, may not be dispensed with—in fact, cannot be left out if the service is to satisfy. Little headway is possible in getting a vision of our food traffic unless this difference between the machinery and its operators is kept clearly in mind. The first is vital, the second is only one of several choices.

OBSTACLES TO FOOD DISTRIBUTION

The localized output of food favored by soil, rainfall, and climates, as we have seen, gives all the sanction for

a full food supply that obedience to nature's laws always gives in any field. Its defects, however, in view of the world-wide use of all sorts of food, are plain. Tea, grown in Japan, is far away from the English tea drinker, as Birmingham cutlery is far removed from the Japanese household. Beans are a staple diet in Boston but beans themselves are the products of Michigan farms. These defects are overcome by exchange, or, as more widely known, by a system of distribution. Our traffic technic, as shown above, renders its chief service through the curing of the defects of a localized output intended for universal use, and cannot be spared from any point of view. It now remains to take up some of the defects in the perfect working of this exchange machinery which are most common and are most evil.

The lack of plan in the running of this machinery of food distribution is the first of these. "Planlessness of the competitive system" is the common name for this evil. Like each of the other branches of our economic frame, the middleman pursuit is carried on under a scheme of free competition among its members. This is, of course, the mold into which all our present-day economic life is cast. Its soul is still found in the famous "hands off" or "let alone" precept; its motive is still that of "each for himself" on the part of competitors. This style of doing things is now under fire from many points of view. But from none of its defects, is it more in danger than from those which have to do with food marketing. Rudyard Kipling writes of a visit to Chicago:

I was shown business blocks gay with signs and studded with fantastic and absurd advertisements of goods, and looking down the long streets so adorned, it was as though each vendor stood at his door, howling "for the sake of money,

employ of me or buy of me and me only." I have seen the way the crowd acts at a famine-relief distribution in India. I know how the men leap into the air, stretching out their arms above the crowd in the hope of being seen, while the women dolorously slap the stomachs of their children and whimper. I had sooner watch the famine-relief than the white man engaged in what he calls legitimate competition. The one I understand. The other makes me ill.⁴

Plainly, the feeding of its members is one of the chief concerns of every people on earth, yet with us the self-gain of the middleman is the chief motive relied upon for getting this done. In contrast with the system and order of our War-time food handling, the peace-time way is notably casual and haphazard. Middlemen, indeed, market those foods only from which they make a profit; others remain unsold in the hands of the grower. Great wastes are a leading bane of this way of doing things. Food dealers misjudge the consumers' wants in the heat of the rivalry of free competition. No middleman may know surely, in advance, what his patrons may desire, yet, at the risk of a wrong supply or an over-supply, he must meet his customers' instant wants with a stock on hand. But this is far short of the end of his risks, since competing dealers, all having the same patrons in mind, must keep up each a separate stock with which to meet this demand. No one may doubt that much of this supply is largely in excess of need, will go unsold and will result, therefore, in waste. The chance element in marketing which this brings about adds much to the burdens of the public through the higher prices which must be charged in order to cover the losses from these wastes.

A plan would remedy this casual and wasteful method

⁴ Kipling, *From Sea to Sea*.

of marketing. The lack of a plan among the operators of the food-sharing system is, indeed, all the more keenly felt because the use of one is not a matter of mere theory. Planned distribution of people and goods is found in the efforts of the modern railway service and, more and more, this is being made to work to the benefit of the public. Planned handling of the mail is always carried on in the interests of the people. Great national crises have shown that it can be done with food also, as in the instance of "food control" during the late War. Indeed, no less an authority than the Federal Trade Commission, advises that this control in its essentials should be made a fixed part of our marketing system in peace as well as in war.⁸

The second obstacle to food distribution arises also from our competitive system. This is the needless cross-purpose which is found everywhere between the consumer, on the one hand, and the middleman seller on the other. The first of these two seeks utility as the end to be attained through exchange, while the second seeks market value or price. In fact, the hybrid nature of this market value, as the offspring of scarcity and of utility, is the root source of this vicious cross-purpose which comes up in the handling of commerce. No ready cure for this evil comes to hand, under our competitive system, but its shadow rests everywhere to-day upon the marketing of our food supply. The evil may be wisely noted, however, even if no means are shown for remedying its effects.

The possession of an article of food is sought by the consumer as a matter of fact on account of its utility. The middleman seller, on the other hand, is largely concerned about the scarcity of this article of food, since scarcity is no less a cause of higher prices than is utility.

⁸ *Wholesale Marketing of Food*, pp. 194-195.

Our laws against the monopoly, the hoarding, and the storing of foods are attempts to break down the artificial scarcities which do so much to raise the price. In short, public welfare asks of the middleman, a complete and a cheap division of all food. On the other hand, the middleman's interest is to seek the high exchange value which comes with such fatal ease from scarcity natural or otherwise.

The quest of market value, which present-day methods puts upon the middleman as his proper goal, often results further in what is known as "predatory" competition. This is no less than the underhanded rivaling of one competitor by another so as to ruin him. "Price cutting," special discounts, fake sales, and coercions are among the many well-known ways by which this is done. Again, in view of the very natural purposes of a food supply, even the familiar headlines to price news which we find in our market sheets, seem to show a bent somewhat aside from the trend of social welfare. Commonly, we see such headlines as "Corn is looking up," "Butter has a better tone," "Wheat is on the mend," meaning thereby that these foods are rising in price, are scarcer in quantity, and, therefore, the consumer will suffer through a higher cost of living. Debased and noxious foods also must be put down in this same class of ills, which our present competitive methods bring upon us. These things, of course, serve no useful purpose, common as they are, but a system of marketing, which puts a premium upon exchange value, gives good profits to dealers who will dilute goods and sell shams. No small part of the costs of modern governments in fact is found in the needed outlays for police restraints upon food dealers who sell price-bearers rather than real utilities.

The quest of exchange value on the part of middlemen as a prime object of endeavor is also a cause for the vast amount of over-advertising which takes place. As a means by which to inform the public, advertising has, of course, a proper service to give. The public must be told where articles are to be found or else public wants will go unsated, and useful things will go to waste. As a plan of teaching, then, advertising has a real field and its utility is beyond doubt. But, the vast amount of advertising which tries simply to draw support from one dealer to the support of another can have no very valid excuse for being. Certainly, none at all from the point of view of public utility, and surely should be done away with. In addition, vast and costly outlays of other sorts, by which dealers try to win trade from their rivals such as traveling salesmen, reckless uses of credit, bonuses, etc., are everywhere made use of. The costs of these are of course borne by the public, and, like our other rivalry evils, they make up a great amount of social waste.

A recent writer upon marketing has well said:

Every commodity on its way from producer to consumer passes certain points where it is most vulnerable to attack. These are strategic points. With perishables, the strategic points in distribution are the storage houses and refrigerator cars, with grain the elevators, with oil the pipe lines, and with live stock the stock yards. Whatever and wherever these strategic points are, there will always occur a struggle for control and of defense.⁶

Strategic points suggests a warfare rather than a program of service. The struggle for "control and of defense" just spoken of can hardly be the outcome from a

⁶ Duncan, *Marketing; Its Problems and Methods*, p. 69.

food-sharing system bent on serving the public at the least cost. Rather, it savors of a food-marketing scheme which, in part at least, will enrich the middlemen by causing high values where no service is given.

The "paradox of value" is the name which is often given to this dualism of good and bad, of utility and scarcity, which is wrapped up in this great economic entity of exchange value. The use of exchange value as the basis of exchange for all buying and selling is, of course, the method out of which most of the troubles grow. But exchange value has also a useful by-product, which it gives off, known as the functional service of value. In other words, market value loosens or stays the output of trade stuffs. Consumers have no other tongue with which to tell producers what they prefer than the price which they are willing to pay for products. Growers are guided by this and will respond with more products to a high price, with less to a low one. The loss would be immense if we should fail to have this guidance. The really great reforms of economic life which must be made, therefore, to get rid of value and its evils, makes us rather willing to "bear the ills we have" than fly to these others. Socialists alone of all our economic schools are ready to make the change.

CHAPTER VIII

MIDDLEMEN AND MARKETS

THE food-sharing or marketing service is a natural result, as we have seen, from the great economic rule of division of labor. The limits to the field in which this rule works to advantage are not easily found. Even now its borders are being spread further apart everywhere by the use in shops and stores of the methods of scientific management. There is, so far as one can see, no place in industry for any one except the specialist.

CLASSES OF MIDDLEMEN

The middleman expert came into being doubtless at the same time that the distinct consuming class separated itself from the class of food growers. The food grower, indeed, taking up his side first, found greater profits in giving himself wholly to the farming task rather than to spending time seeking buyers for his products. In fact, economic history points out the rise of a class of marketing experts, such as middlemen are, in England just prior to the great industrial overturn in the seventeenth century. The later growth of large cities, caused by the needs of the factory and made possible by the railroad, gave this new service a sure foothold. Indeed, the ends of the world were now called upon to feed these cities.

The vast growth of wealth in modern times has added to the buying power of the food user until he is not only able, but glad, to avail himself of these tradesmen. He is

gratified now through having his food in the amounts, kinds and quality and at the times and places that his fancy lays down and pays for it on these terms. The middleman is glad, indeed, to meet his wishes upon this basis. Food tradesmen of earlier times were content, as a rule, to move delicacies, only, from place to place, at least, if long trips were to be made. The trade of "Arabia and of Ind" was, indeed, made up mainly of luxuries and these in amounts of minute size. Now, however, every sort of food may be sent the world over, and it is this vast volume and variety which has brought the traffic in food into its present importance. As was shown on earlier pages, the actual wants of modern food users are not the only ones which are ministered to by food dealers. All possible food wants also are whetted by the arts of selling and advertising.

The growth of this whole marketing service—taking in the mechanism, the functions, and the human element—may be shown in little perhaps by giving the history of a single food trade. Fluid-milk marketing may be best chosen for the purpose, doubtless, since this trade has come up recently and has had a rapid growth. The dairyman sold his own product to town and city customers until three decades ago, and in small and out-of-the-way towns, he still performs the services of both production and marketing. His jangling bell each morning called the village housewife to the street curb where, in some handy dish, she had her portion of milk dipped from the salesman's can which he carried in a buggy. The product was sparingly bought and was of doubtful quality, if one may judge from the classic place market milk held in the humorous papers of the times, as the subject of witticism. The United States Industrial Commission of 1900,

in speaking of milk marketing in New York City, notes the following:

The wholesale and retail dealers in the cities have almost abandoned the practice of watering milk which was so generally done in past years.¹

The demand for milk by city people grew vastly greater in the late nineties, when certain devices which cleaned milk of all bad elements and kept it from being diluted came into use. The invention even, of the glass bottle, used for containing milk, added much to the city sale. The old price paid by the consumer which had been set when milk was looked upon almost wholly as a drink, now gave way to a new price many times higher when milk came to be looked upon as a food. Public authority, acting through City Boards of Health, backed up the fluid, and, as a result, bottled milk came fully graded to the consumer's table.

Many cities had now grown to a size which made the old style dairymen delivery system a failure on account of the large area which must be covered, and the city milk trade took on its modern aspects. These are, in brief, a large central city plant to which milk is taken from the farms and where it is cleaned, iced, and bottled, and from which it is taken again to the city users. There are also needed the so-called "country receiving stations," handy to railroads, at which milk is gathered from the dairy farms, cooled, and held until ready for shipment to the city. Iced cars carry the milk in large cans over the rail or electric roads and sometimes the journey is one of many hundreds of miles.

For every step in this process there have now grown

¹ Industrial Commission Report, Vol. VI, p. 381.

up groups of experts, each member of which gives himself to one single service. The milk delivery men of the cities, for example, are the salesmen of the trade. The processing plant requires men of the same expert skill as do other factories. The business officers look after the defending and extending of the business, the handling of credit and the general policies by which milk is sold in the best way. Last, but not least, the rural receiving experts do the needed assembling of milk for later city shipments. Milk marketing has now become vastly complex, but no one believes that any real feature of it may be dropped without hurt to the milk supply of the city. The price to the user of milk has gone up two or three fold. On the other hand, the fluid has become a much better product and is sold in a much more steady and regular way. In addition, and most notable of all, a full supply is now in the hands of city people at all times.

The term "middleman" names the dealers who pass food products from the hands of the grower to those who use them—a cityward movement in general from the country. The number of this class among us equals, roundly, one tenth of the whole number of our people engaged in gainful work or about 4,000,000 persons. The pursuit is less well divided out into distinct lines than is true of other trades, since its origin has been of such recent date. The result is that no full record of all the middleman branches and members may be anywhere easily found. The Hoover Food Board, however, during the war time did much to clear up this confusion. This it did through requiring "that any food distribution, storage, importation, or manufacturing business, except farmers' coöperative associations and retail dealers of less than \$100,000 income per year, must be licensed." The wide-

spread obedience to this rule which followed brought out quite fully for the first time all the members of the middleman class.

Middlemen are properly grouped from one or the other of two points of view. First, they may be looked upon from the point of view of special service performers—the special service given by them in the conduct of their business. From this standpoint, they are called “functional middlemen” and answer to such names as wholesalers, retailers, jobbers, commission men, etc. The dealers of these sorts are the ones who are usually meant when the public complains of “too many middlemen.” The rise of these groups of experts comes from the working out of the division of labor principle within the field of marketing as it has worked out in so many other economic fields. Such a trend in respect to middlemen has all the defense which is found in the use of this law of specialization anywhere. The more easy grouping of middlemen is the one which is based upon the nature of the trade article handled, and a grouping of this sort goes by the name of “commodity” or “trade” middlemen. The work of the functional experts will now be spoken of, and that of the trade specialists will be taken up in a later chapter.

THE RETAILER

As was just said, the service standpoint operates to classify middlemen as retailers, wholesalers, local shippers, and into groups which lie between these main ones. Since the retailer is the handler of the most finished food, we will first of all discuss his work and then that of the others in regular order. This middleman, it may be said in passing, is the especial object of attack to the consumer,

since he is the one whom the latter meets face to face. His numbers are seen to be very large when counted side by side with the numbers of other food dealers. In addition to the fact that an army of these experts is really needed, however, for serving the public, the great ease with which new recruits move in—little capital or training being needed—helps to swell the group. The retailer's defense of the heavy charges which he adds to the costs of his stock is found in the following list of services:

1. He stores food. *The Harvard Graduate Studies in Retailing* tell us that the usual grocery carries from 750 to 1,000 brands of goods. Modern dwelling houses have no storage places for much food and, therefore, the consumer wants small packages at frequent intervals. The retailer is without doubt, therefore, a storer of food. The retailer will also take anything back which the customer wishes to return, since a maxim of the trade requires that the buyer must always be satisfied.

2. He advertises food. Nothing can be sold unless there is a desire for it, and one desires only what he knows about. Advertising teaches us to know about things, and, as a result, to want them. There are many kinds of advertising used by food dealers, such as newspaper space, handbills, "leaders," billboards, window dressing, etc., and all of these require some outlay from the storekeeper. No advertising is averse to the use of hypnotism to some degree, and this means that our wills are acted on by other means than the force of reason. No one may doubt that advertising renders some social service. Whether the public receives returns, however, of equal size with the increased costs which are paid is an open question.

3. He grades and dresses food. Food dealers sort and classify farm stuff which is brought to them for sale, and thus please the consumer. At any rate the consumers buy more readily when products look pleasing to the eye. Pigs' heads with garlands look better than plain pig. Businesses with good profits have been built up at grain centers, which give us actual examples of the profits which come from grading. These are the so-called "mixing houses." The whole work of the dealers at these houses is to mix a small amount of first-class grain with a large amount of third-class grain, and sell the whole as second-class. The second-grade brings a higher price than the third, and from this fact arises the gain.

4. He delivers goods. This, by the *Harvard Graduate Studies*, is shown to be the second highest cost found in the retail business. The relative expense of this delivery service is 3 per cent of the whole retail costs as compared with 6 per cent which is the cost of the salesmen service.

5. He advances goods. It is more agreeable to a retailer to give credit than to take cash for the goods which he sells. This comes about through the fact that he sells more goods than he would if cash were asked. In addition, goods are telephoned for by the housekeepers, and are delivered by carriers who are often not to be trusted to take up money. The retail business, therefore, has many credit aspects which add to its other heavy charges.

The report of the United States Industrial Commission of 1900 presented the belief, that direct sales between the producer and the consumer would in the near future make up the chief plan of food sharing. It was expected at this time that the retail business would decline, but the actual case has been far otherwise. The reason why it has not lost out is found, no doubt, in the simple fact

that retailers give a service which the buying public will not do without. Indeed, the need of the retailer by the buyer has grown apace, and the dealer is now often looked upon as an expert adviser to the buyer by whom this latter is advised as to what he should buy.

The general outlook for the retail merchant and also a better grasp of his present status may be obtained, perhaps, from an account of some trade policies and beliefs which he follows in his business. In the order of their discussion, these may be given as, first, the policy of rapid "turnovers"; second, the policy of a selling program; third, the policy of the "one-price" sales system; and fourth, the belief in the sale of services rather than of commodities.

What is a "turnover?" The answer to this query is somewhat technical, but the notion itself is not hard to grasp and is as follows: The retailer often divides his assets into two kinds of capital—fixed and working. Whatever must be paid for rent, insurance, utilities, etc., are payments which may be charged against fixed capital. The part of the food's price which he must charge customers in order to defray fixed capital expense is found by dividing the probable sales of the year into the sum of these expenses. On the other hand, the above-named retailer uses a portion of his working capital as a means for buying goods. Further, in setting his prices, he adds to the costs of these goods a fair interest charge on this working capital. The paying out of this capital as the means of buying a stock of goods, and the receipt of it back again by selling these goods makes the business entity known as a "turnover." In the grocery business, a turnover should be made from seven to ten times a year.

Working capital is to the retailer, therefore, a vehicle.

It is much the same as a taxicab is to the garage owner, the oftener it can be used the more the profit. Professor Nystrom in his excellent book, *The Economics of Retailing*, gives the following concise example:

A pushcart man, for example, working for \$2 per day, may sell a load of fruit costing \$6 for \$9 working all day long. This purchase of a load of fruit for \$6, and its sale, makes a turnover, and nets the employer one dollar profit—in other words, the difference between the fruit and wages costs, and the sales income. If the peddler could make two turnovers in a day, on the same terms, the profits to the employer would be $\$18 - \$12 - \$2 = \$4$ profit. Three turnovers would be $\$27 - \$18 - \$2 = \$7$ profit.² From this example, the joys which come to the dealer through rapid turnovers are very easy to be seen. There are, in fact, no dealers who do not wish as many turnovers in a year as may be obtained.

Retailers do not, as a rule, wait for customers to come and buy; they organize timely selling programs by which the patrons are induced to come and buy. This is done through putting out "leaders," through advertising, etc. A selling program is planned for the purpose of stocking the locality with certain goods, which the retailer finds it to his benefit to sell at a set time. Many instances come to the reader as examples of this policy, since it is one which is used by all merchants. Hard coal, for example, is sold by coal dealers at a per month raise in price from April to December, almost everywhere. The idea back of this policy is plainly seen. People must be induced to buy early, and thus the rush of demands which would otherwise occur in the winter will be relieved.

A "one-price system" in a store avoids the huge amount

² Nystrom, *The Economics of Retailing*, p. 232.

of higgling between salesmen and customer which often takes place in the making of a sale. It also gives the buyer the belief that he is being treated fairly. The custom was begun first as a scheme of advertising but is now used almost everywhere as a helpful business policy.

One of the most common errors with regard to food marketing, held by the general public, is the belief that dealers are first of all sellers of goods. Quite the reverse from this, retailers tend to look upon their task as the selling of services rather than that of selling goods. In fact, retailers classify themselves into the same kinds of groups with doctors and engineers. The best of them, indeed, try to follow their pursuit in the manner of a profession, by acting as expert food advisers to their patrons. Milk, for example, may be bought by the consumer from the dairyman producer at cost, and the buyer will find the price is fairly low. But a distributor buys this milk, pasteurizes it, bottles it, ices it, and delivers it to the consumer for a price which equals twice the amount of the first cost. This added charge is simply payment for service, given by the dealer, since the first price of the milk was the same to every one whether seller or buyer.

WHOLESALE MIDDLEMEN

The wholesale dealer handles food in big amounts. This, in fact, is the source of his name. Grain brokers on the boards of trade, for example, handle nothing in smaller lots than units of 5,000 bushels of grain in their marketing deals. Produce dealers, jobbers, and live-stock drovers ship, if possible, only carload lots. Indeed, all of these are sometimes spoken of as "car lot" dealers. The wholesaler is the big assembler of food products

among middlemen, and this service, which he performs, is beyond the scope of either the retailer or the local shipper. The business place of a wholesaler is often likened to a reservoir into which streams of goods trickle from everywhere, and out of which streams flow towards the final places of use. Even the jobber wholesaler, who plies between the commission man and the retailer, has a bigger stock than this latter. As we have seen, food products, the growing of which is now localized out to set places, must needs be gathered up before they can be re-shipped again to a world-wide market. This service is the prime one which the wholesaler directs, and he holds an exact midway position between the grower and the user. In the fabled middleman's arch, in other words, he is the keystone. These dealers, in the main, will always take farm products at some price; country shippers, as a rule, therefore, have only to forward their stuff to the city wholesaler in order to dispose of it.

The wholesaler is the price-setter for farm products and for foods; the local shipper getting his price quotations from him as does also the retailer. This vital service is his to render: first, because he handles larger amounts of goods than other dealers; and, second, because the world supply and the world demand for products can be brought to a focus through his trade facilities. These trade facilities, when at their best, are, in brief, boards of trade for grain wholesalers, exchanges for wholesale drovers of live stock, and produce auctions for large dealers in fruits and vegetables. Since these agencies have large functions and a wide use, they can be mentioned only at this place and a further account of them will be given in the next chapter. Suffice it to say here that, through these agencies, the wholesaler's judgment as to supply

and demand for staple products is made known. These judgments are given to the public every day by the market prices which are made.

Wholesalers are also the owners and patrons of our biggest marketing devices, such as terminal elevators, stockyards, and cold-storage plants. Through these devices, they equalize the seasonal farm output with year-round use. The wholesaler pays a low price to the farmer at harvest time both because grain is plentiful at this time and also by so doing his elevators will not become flooded. The pre-harvest price is high, on the other hand, so as to draw out the farmer's entire supply. Wholesalers have the lowest expenses of any of the middlemen, and, as a result, they get the smallest share from the final price. This is due to the fact that they advertise but little, employ low rental business sites, handle goods in bulk, and use the most efficient of trade devices.

The various classes of wholesalers are, in brief, the jobbers, the commission men, the brokers, and the food-factory operators. These traders have well-set-off fields within which they work, and these will now be mentioned briefly, in the order named above. The jobbers are the storekeepers for retailers. They do every service done by retailers but do them on a big scale and for retailers only. Branch packing houses, wholesale groceries, provision and produce houses are common types of the jobber agencies. The well-known American Produce Exchange is a jobbing company on wheels. It tries to cover the whole country with its houses and agents rather than simply the area of a single locality.

Commission men are the typical dealers of the large primary markets. They take up country products of all sorts and sell them to local or to foreign city middlemen

to the best possible advantage. They act purely as agents for the country owner of the goods and take only a commission on sales for their pay. These were the founders and are the chief patrons of boards of trade, of the live stock exchanges, and of the produce auctions. Brokers are mere buyers and sellers of products by description—mere go-betweens. They handle no goods themselves but act mainly as a sort of news bureau so that some would-be shipper may find a customer and some would-be buyer may find a seller.

Food manufacturers of all sorts—flour millers, meat packers, bread bakers, produce canners, or what not, are really wholesalers of food products, indeed, they were so treated by the late War Food Board. They give a form utility to farm stuff which is rather more marked in degree than are some of the utilities given by other middlemen. In principle, however, their services are not different from those of other large dealers. The added prices which they give to the first costs of the raw farm products are not commonly, a large share of the final price which the consumer pays.

LOCAL SHIPPERS

Selling to the city wholesaler of the proper group, the country shipper of farm stuff finds the service in which he is an expert. This middleman is usually a local drover, a local elevator man, or a produce dealer. He gathers together, stores, sorts, and ships farm products to the city dealer. His agencies are local elevators, stockyards, and produce warehouses. The services performed by these dealers are by no means obscure. Those done by drovers, for example, having lately been made the basis of a popular novel—*David Harum*—which proved to be at its

coming out, the season's best seller. On the other hand, these services are so many and various in nature that a helpful and easy statement of them cannot be made in a brief account like this.

Though isolated each to his own locality for craft purposes, local shippers often organize themselves into societies which are sometimes state-wide in their range of efforts. Societies of these sorts as a rule have very definite reasons for being. They fight hostile railroad rates and bad usage from city commission men, and they seek to keep up grades or try to get practical results along some similar lines. The place of these local shippers is seemingly the least secure of any in the middleman world. Local coöperative societies among farmers indeed, threaten everywhere their existence and are making headway against them.

BENEFITS FROM THE MIDDLEMEN PURSUITS

Some general benefits which spring from the work of the middlemen classes, when taken as a whole, should now be set forth in order to complete the account. These, when looked into in this broad way, may be told of briefly as follows: first, the benefits from the guidance of food-growing as to the proper amounts and kinds; and, second, the benefits from the financing of the whole food supply. Both of these need a word or two of further description, since neither are services which are readily seen from the surface.

The growing of food under our commercial system of farming is, of course, for the market, and to the market most of it goes. A prime trouble comes up here, however, of technic as to how the farmer is to find out just what

the market demands and how much. Here it is that the middleman guidance spoken of above gives its service. If the output of a product lags, the higher price offered by the middlemen gets a bigger crop area planted the next year. If the output is overdone, the process is reversed. In this latter case the dealer being in a position to see and having a wider view of market wants than that of the farmer offers a lower price, and this checks the tendency before it goes too far. This guidance is the so-called "functional service" of prices, and there is no other guidance so direct and so worthy of trust. Farmers must be led to the right crop programs in this indirect way or else accept the method of direct control from the government which is urged by socialists.

Food products as we have seen before are, under our present-day economic system, notable cases of private property. Some one must own them and must have a title to them. They pass in trade from hand to hand on the basis of property. Now the first rule of good bookkeeping (that for every ownership or title there must be a matching outlay or debit) holds true here as well as elsewhere. This rule can be avoided no more in the case of food property than of other sorts, and its effects here are to give the middleman one of his biggest tasks—that of financing our entire food supply.

As we have seen, the annual output of the food products of the country runs into many millions of tons, and for nearly all of this there is a matching sum of money. Money of this sort is put up by the middlemen, since farmers cannot hold nor consumers store their supplies for great lengths of time—neither being in practice long-time owners of food. The financing, as it is called, of all this is done, then, by the middleman, but at no one

place in a very striking way. Indeed, all food products pass from one class of middlemen to another on a change of ownership basis, each article being bought and sold as it passes. It is to this fact of widespread ownership, therefore, that so much money is used with so little notice. The total sum to which all this aggregates, one may easily judge, equals many, many millions of dollars.

The belief has become very common in late years that foodstuffs are made to pass through too many hands on their way from the grower to the user. With regard to the flat query as to whether or not middlemen are in excessive numbers there is no exact answer. One can only say that the jobs of these experts are neither entrenched nor backed up from the outside in any way. Middlemen are able to make profits only through the prices which their fellow traders or customers are willing to pay, and these persons are under no compulsion. In addition, the relations among middlemen themselves is in the main that of keen rivalry. The rate of business failures among middlemen as a result of not being capable is very high. Indeed, the middleman who merely takes toll from the products which pass through his hands but renders no service in return, is in a dubious position. He is apt to be cut out by some rival who is able to market more directly. On the other hand, the ease with which any one may enter the middleman trades, needing little experience or capital, tends strongly toward an oversupply of numbers. The consumer, on the one hand, and the producer, on the other, often feel that people without jobs simply thrust themselves into the middleman service. This expands still wider the gulf between these two groups, the buyer paying more as a result for his food supplies and the grower getting less.

Whether right or not, the cutting out of middlemen has had many vigorous advocates in recent years, many going to the extreme lengths of urging the complete dismissal of all these go-betweens. The great rise in prices during the past two decades from which many have suffered has stirred the feeling that a surfeit of middlemen has been the cause. The charge is also made that the marketing system of these trades is too complex, and much of it is not needed. "Products," it is said, "could be marketed more directly, if it were not for the many middlemen who ply between the producer and the consumer and look to this means as a way of making a living." Some "direct marketing" plans, indeed, such as those of city markets, parcel posts, and joint country and city co-operative societies have been tried out and have had many notable successes. Few dream, however, of trying to burden any one of these methods, or all of them put together, with the entire task of distributing all food products everywhere, since this would prove hardly possible.

Since some partisans of direct market methods are not content with being shown the unwisdom of doing without the middleman, an effort to prove in detail that he is needed may not be amiss. Sales, for example, can be made by one or the other three ways. These, in the order of their frequency of use, are: (1) by display of goods; (2) by the showing of samples of goods; and (3) by the description of goods. Since every sale calls for the transfer of property from seller to buyer, the question arises here, as to which one of these three ways the direct marketer plans to use. No one of them, nor all combined, a little study shows, will prove feasible for the direct marketing by every farmer of all his products.

No one of them, nor all combined, will prove feasible to every consumer as a means of getting all his supplies straight from the farmer. Owing to the fact that no other method of sales is known save the ones spoken of, it becomes clear that direct marketing must fall to the ground when looked upon as a complete substitute for the middleman system.

MARKETS

The place where the middleman's work of buying and selling is carried on is called a market. Strictly speaking, it is the buying and selling activity itself which defines the market rather than any place or product. The market of a commodity, in brief, is anywhere where the commodity in question is bought and sold. Thus, wheat and gold have a "world market," because everywhere they are in demand, and nearly everywhere there is some supply. Certain fish and fruits have local markets because they are unknown save in the regions of origin, and there is no demand for them elsewhere.

It is the activity-defined market, then, which we have in mind, when we say that "markets have been vastly broadened in recent years by the services of railroads and telegraphs." Or when we say that "a good market has been worked up among us for bananas and citrous fruits by dint of business hustle." Or that tariff laws favor the home markets as compared with the foreign ones. From this point of view, the market for an article and the demand for that article are two terms which mean almost exactly the same thing. And this notion of a market is, perhaps, the one most widely used, when the subject is taken up for abstract comment, or when treated of in public discussion.

Food products are passed through a series of these markets on their trip from the country grower to the city user, each one having its own members and its own devices. Every food product, indeed, which enters the usual trade system has at least three markets to pass through before getting to the consumer. These when named in order are, the local country market, the big wholesale market, and that of the retailers. For many foods, there are more than these three since quite often the jobber, as he is called, plies between the city dealers of largest size and the local storekeeper. Often too these markets are spoken of as primary and secondary, the first term naming the classes of buyers and sellers in the city, and the second those of the open country.

The middleman feats of advertising and of making sales, as was shown on a previous page, have had much to do with making larger and wider these markets. In addition, too, the government in all its grades has also given much help toward this end. Milk rules enacted by cities, for example, have vastly widened the markets for this fluid. The same may be said about the effects of like rules, when laid down by federal or state laws, upon meats of all sorts, and upon many kinds of canned foods. Some markets, on the other hand, have been limited or done away with by laws. The markets for margarine and for alcoholic drinks are cases which come readily to mind. A tax law of some sort is the favorite weapon of government by which it keeps up or tears down a market.

The creation and defense of a market is done by the retailer largely through advertising and through his salesmen. These may unite the patrons of a business into a following of such a fixed and settled nature that it may be

bought and sold like any other property. Under the name of "good will," this property may be brought into courts for defense against libels or boycotts. The wholesaler creates his market largely by personal pleas and by letter writing. In this way, the so-called "trade relations" are set up—a more or less misty lot of relations which make up a large part of the wholesaler's business assets. In the local rural shipper's market, personal pleas are also the chief means of building up a market, though here the activity known as "hustle" counts for a great deal. In all of these markets a good name for square dealing is one of the best of assets, since, as in other professions, the personal element counts for much among middlemen.

Products move through all of these markets, as a rule, on the basis of changing from one owner to another. The normal competition which goes on in and between each of these classes is goaded to no small fury by a special sort of rivalry. This comes from the efforts of mail-order houses and factory branch houses and other agencies to short cut the road to the consumer. Enough success has been gained in these efforts to give rise to the saying, that "middlemen tend by their own efficiency to eliminate themselves." In fact, the local shipper, the wholesaler, and the retailer must be up to his work or become bankrupt.

The recent trade movement, known by the name of market integration, tries to cut out some of these market stages by having the control of both the sale and the production of a product within the same firm. This is, of course, the well-known business integration plan made use of by certain of our huge business combines. Only, in this market-integration case, the plan is made use of from the sales side instead of from the output side. Mr.

Carnegie's famous dictum, employed in the case of his integrated steel business, "that there should be but one profit between the mine and the steel buyer," suggests the spirit of this plan.

The scheme of market integration seems to work out well in cases where the demand for a commodity is large at one point, as in the instance of milk sold to a city. Here the milk dealer may easily operate a dairy farm as well as conduct a city plant. Even at present, some of these city dealers not only own their selling plants but also own their especial country stations, and sometimes also their especial dairy farms. The marks of a business which warrant integrated marketing have been recently summed up as follows: (1) heavy but not excessive advertising expense; (2) concentrated production or consumption; (3) requiring "special service"; (4) aggregated in interrelated groups; (5) subject to highly standardized marketing technic.³

The rural shipping markets display as their chief trade agencies the retail store, local shipper's concerns, farmer's coöperatives and the local food factories. The stores, as factors in the local markets, were once much more common than is true now, and trade was carried on then mainly upon a barter basis. Stores still persist in the "cotton belt," where the well-known store control of crop making through "cotton liens" makes a marked system by itself. The "cropper" is, indeed, but little more than the agent of the storekeeper. Butter and eggs also are handled in many places by stores as in early times upon a barter basis.

The local shipper, however, is the type dealer in the local markets at most places. His business methods are

³ Haney, *American Economic Review*, Vol. X, p. 544.

varied, and at times seem to have no clear basis of reason behind them. The local shipper of live stock, for example, usually goes about from farm to farm to buy his shipments. Local shippers of grain and produce, on the other hand, buy and sell at their town or village places of business. Coöperative selling societies have become common in recent years—making growth in numbers in harmony with the growth toward perfection of our railroad, telegraph, and “phone” systems. These societies are able to bring about certain savings in the sending of farm stuff to city markets which can be made in no other way. It is on this account that they have a real future before them. Through being made up in the main of farmer growers, one may easily see that farm-product selling and farm-product growing may be tied together by these societies so as to benefit both.

Local factory concerns of the creamery, the canning, and the grist-mill types also find a secure niche in these local markets. This comes about through the fact that savings are made by these concerns through getting raw farm stuff without the costs of freight charges. They also leave the roughage from their products—in a word the waste—at the places of origin. This fits in with true economy, since useless stuff is not moved, and, on the other hand, it is left as a possible manure where it belongs.

The wholesale markets furnish very perfect examples of the adaptations of means to ends in order to attain success. Here are to be found the ablest men in the handling of food and the most perfect devices. Food is dealt with here in the largest amounts, and market control is kept up in the most careful and widespread way. The best balance between supply and demand is reached upon these wholesale markets also, and the prices which result

are the basic prices for all the other markets. The wholesale markets are really world markets in extent, at least in respect to certain foodstuffs. The fact that a uniform price for the commodity in question is found the world over is the proof of a world market. Prices, of course, are the effects of certain economic forces and the fact that prices are the same everywhere shows us that these forces are also universal. The keen play of rival interests upon these markets moves goods, through the agency of price, from places of plenty to the places of scarcity as if by magic. This outcome is a result of the well-known feat of "keeping markets in line" and would be a task of great difficulty were it not for the wholesale markets. Market agencies, market news, and market rules, which are kept up by the big dealers at these big markets, are of course useful to the same end.

The retail markets are made up of stores, of truck stands, of pushcarts, and of branch houses and are, when of the best type, the closest mirrors of the consumer's wants. In these markets, foodstuffs are found of the right kinds and quantities, at the proper times and at prices which the buyer will pay. These are the markets having the best worked-out schemes of sales craft and offering the largest number of services. These are markets of great risks, too, since those engaged therein are often without experience, and the number of failures is very great. Markets of this sort are in the course of rapid change, too, so far as make-up is concerned. Chain stores, department stores, mail-order houses, and coöperative stores are everywhere making gains in method which may ruin the whole structure. Strong as the trade societies are into which retail dealers join themselves, they have not brought about thus far a control of the retail

market which cuts out price wars and unfair competition. The Federal Trade Commission, set up in 1914, which has these retail markets in especial charge is trying to remedy these ills. It may, however, be more hopeful in its plans for curing these troubles than the conditions warrant. Still, it is the claim of this body that by "turning in the light" upon retail abuses, through widespread publicity, these markets will be able to effect a better system than is now the case.

MARKET CENTERS

The term "market" is also used widely in other ways, than in the one given above. For example, it is used to name places, as well as activities. In particular, the term is used to name places where a large number of middlemen dealing in certain products are to be found. It also names places where the market devices and shipping means are of the best sort, or places where for any reason much dealing takes place. Instances of markets, from the "place" point of view come readily to mind. We think at once of Minneapolis as a wheat market, of Chicago for produce and meats, of Los Angeles for citrous fruits, of Baltimore for oysters, of Boston for fish, and of New Orleans for cane sugar and cotton. It is from the markets of this sort that trade news is received—at least, that most important of all trade news—the market price.

Chicago, it may be said in passing, is the leading food market in the whole world from the point of view which looks upon a market as a city or town. Different parts of the city, indeed, are given up to the three great groups of food supply; namely, the grains, the meats, and the produce. In each of these, it must be said further,

Chicago has no rival as a marketing place. The grain exchanges of this city excel all others in the volume of their annual sales, and the grain storage places are among the largest in the world. The stockyards and packing houses have indeed a unique fame among food-traffic agencies. As was said on a previous page they are among the most popular and best known show places of the city. The produce market on South Water Street with its storage houses and various auctions has no rival in the world in the volume and variety of the products which are bought and sold there. In addition, the crucial test by which a prime market may be known is found in Chicago. It is from this market that many prices, such as those for butter and eggs, and grains and meats are everywhere quoted.

The setting aside of markets in this way to distinct places is not always a result for which a reason can be easily given. Often, the nearness to the source of raw materials brings about this result; again, nearness to great consuming centers is the fact which singles out one city rather than another to control a certain product. Tradition has often settled the matter through keeping to the forefront the merits of an early start. Good shipping means have often been helpful too. Frequently here, though, the result has been obtained from the dead set of some great railroad toward the building up of trade in a certain city rather than in other cities. Thus the favorite city of the railroad becomes the great market.

Feeble as the reason may be which hits off one city instead of another as the chosen market place for a food, the choice once made tends to become final. Trade relations, if nothing else, gives fixity to a market when once set up. The name which a city gets, therefore, as the

market for some food seems to be of the lasting sort. Thus, Elgin, Illinois, many years ago was the butter-making center of the good dairy region by which the city is surrounded. Later, owing to the demands of the large city markets, the crest of the dairy industry passed to eastern states. In spite of this fact, however, the market from which butter prices was received and quoted stayed at Elgin for many years. "Elgin" butter prices, in other words, were the standard prices, though the actual buying and selling of the article here had become a mere pretense. So much there is then in a name in the matter of trade. That we no longer get butter price quotations from Elgin is due, no doubt, to the fact that even the fictitious trade is now at an end. The government closed out the market at this place in the first year of the War.

The services of a market center, like those mentioned above, are usually twofold: (1) they must sell to the demands of their own citizens, and of those in nearby places; (2) they must ship to other markets elsewhere. Chicago, for example, with regard to grains, is largely a shipping center; Cincinnati, on the other hand, consumes within its own limits nearly all of its holdings of grains. The clash among rival cities for the defense or the extension of their trade in some foodstuff is of the keenest sort. This rivalry is at times carried on by the giving of better marketing means than are found elsewhere. Again, it is by the giving of lower railroad rates or of better terminal facilities, or of both combined, that one city hopes to win over another. Usually, it is the shipping advantages which prove to be the make-weight in these market battles.

CHAPTER IX

FOOD TRADES

Foods, as we have seen, are given us by many kinds of food bearers—roots, grains, leaves, stems, and animals of various sorts. Their natural diversity is further added to by the designs of men. Taste, custom, trade and scarcity have worked to divide and subdivide these prime foods into many varieties—each having its own marks and ends. It is hardly possible that all these kinds could be handled in common by the same dealers or business firms. This is especially true in view of the large amounts of each which the market demands. The expert's skill is therefore useful in the field of food traffic as in so many others of the economic world. Middlemen are, as a result, divided into almost as many orders or groups as there are major sorts of foods. These divisions are known commonly as trades and we have, notably, the grain trade, the meat, the produce, the milk, the sugar, the rice, the coffee, the tea, and the fish trades, and many subtrades in each.

FOOD-TRADE ELEMENTS

The term "trade" is used in no especial sense here, when applied in this way to groups of food dealers. It has the same use, indeed, as when applied to any other of the classes which help to carry on the world's work. Our census reports list these trades. This they do for the purpose of showing, in addition to the nature of our

present-day wealth, the promise of our human resources for the future wealth supply. The census always reports these groups as to their number, the count of persons in each, and, for the more notable, the history and type of make-up which each has.

The food trades have also had lately an accidental light thrown upon them which has served to bring their number and make-up into high relief. This came about through the choice of the War Food Board to make the various food trades the bases for its organization. Each of these trades, therefore, was granted the right to its own system, to choose its own leaders, to make and use its own rules and in general to look after itself. Each trade stood out by itself as the result of this plan, and its identity became so clear and plain that the features of a food trade could be known by every one. All might know, for example, that the wheat trade, as a trade, had its prices made by law; that the canning trade was free from the 30-day storage limit laid down by the "food control," while this freedom was denied to other trades; and that the sugar trade, as a trade, was subject to a strict zoning scheme. A welcome trade loyalty was also called out by this plan. This was true to such an extent that each trade was looked to for the policing and proper action of its members in the most complete way. So much self-control as this, allowed to a group, gives it indeed something of the nature of a medieval guild.

The more permanent marks by which food trades are set off from each other are also not missing. These, when shorn of casual details, as commonly given, are four in number. They have been summed up recently in a successful way by Professor Duncan¹ and are as follows:

¹ Duncan, *Marketing; Its Problems and Methods*, p. 69.

1. The size of the productive area.
2. The character of the commodity.
3. The location of the market relative to the productive area.
4. The character of the demand.

The separating effects upon the food trades of marks like these are plainly seen but a few words of description of each may help in fixing the impression. Productive area extent can hardly avoid an effect in shaping the attributes and make-up of the food trades. The movement of goods is possibly the most typical service of tradesmen and this task is strictly the offspring from area. The effects of size in output area upon the nature of a trade may be seen at once by comparing the systems and methods of the sugar trade with those of the wheat trade. The sugar trade gets the whole amount of its supply at some three or four points of production. It needs but few assembling agencies, therefore, and its system is that of a "centralized" trade. Wheat, on the other hand, which is obtained in small amounts from farms widely scattered, requires armies of local buyers to get it together for primary shipment. In addition, a whole scheme of devices and agencies is then needed for carrying it to the central market places. This gives a diffuse trade.

The nature of the commodity is also a determinant in setting the features of a trade. One sees at once that the same devices and methods used in handling a perishable food, like milk, would not be needed in selling or buying grains. In the first case, ice cooling of some sort is a prime need, or else the milk will spoil; in the grain trade, it is done without. Grains, again, through their traits of stability, are easily graded and can be sold by description,

while the meats and produce can scarcely be sold by sample on account of their aptness for decay.

Food characteristics, it may be said in passing, give us the familiar food groups known as staples, semistaples, and perishables. These, without doubt, are the best-known groupings of foodstuffs from the marketing point of view that we have, and they are less vague in meaning than the two other familiar terms—luxuries and necessities. As usually thought of, corn, wheat, oats, and barley, naming them in the order of money values, are found in the first group. Likewise, meats, tobacco, oils and nuts are the things which make up the second; while vegetables, dairy and poultry products and fruits are found in the third. Familiar as they are, the names of these groups may be dismissed with but little notice. At best, they furnish titles for some loose groupings of food trades and have little use further than this.

Trade organization, again, is much affected by the distance that must be traveled in order to reach a market. Some food trades need complex devices with which to overcome distance in reaching markets. The refrigerator car is a good example of this. Many kinds of produce, on the other hand, pass at once from the farm to the market with the barest trace of a system. Several food trades, such as those having to do with cereals and meats, have the means and middlemen systems for selling to a world demand. On the other hand, the fluid-milk trade sells only to a local market, and has no hopes of foreign shipments nor a world market. In these cases the location of the market is the vital thing to the trade. Lastly, instances occur to every one of the effects of a market demand in shaping a trade, since demand is the force which causes marketing of every sort.

A slight study of the food trades shows that these pursuits are much alike. Although dealing with many varied materials, such as liquids, solids, staples, luxuries, etc., the points of identity among the trades are many. Each has, for example, a marketing system which is very similar to that of the others. This, indeed, is proof of a quite perfect sort that the basal needs in all marketing work is, at bottom, of the same type. All alike, for example, have need of the six prime marketing services named in a previous chapter. For each trade, in other words, there must be assembling, carriage, salesmanship, financing, and all the others. Storage means are needed in most of them and grading to standards is finding a growing esteem everywhere.

Further, no important food trade is without its quota of special service middlemen such as jobbers, brokers, wholesalers. These are often labeled with special names as the result of separate trade origins, but their functions are not different whether in one trade or another. Varied devices, too, of a marked sort are found in the working outfits with which the different trades are supplied. Packing houses to one, grain elevators to another, are instances in hand. Here the likeness between the separate trades fails wholly, and devices of certain shapes and purposes are found in some lines which have in the others no copy.

All the food trades are organized closely into groups, societies and clubs, for the purposes of helping trade ends. These societies have a variety of objects which they try to attain. Some have for their purposes the keeping up of grades, of standards, and of trade ideals. All have set meetings which become forums for talking over trade ends, trade dangers, and trade methods. Often, a social or club welfare purpose is added to the others in

these groups. Not rarely, the society is a temporary affair, as when a tariff or shipping menace must be overcome. Some trades have nation-wide relations, as in the case of the wool growers and wool traders. On the other hand, others come together on the basis of local ends or of certain aspects of the trade, and are strictly local.

Trade associations, so called, are a type of middlemen's organizations which have had wide popularity since the War. These serve to spread trade news, keep up trade spirit and often to make researches into better trade methods. They have had no little notoriety from their relations with the "open price" method of trading. A recent writer says:

There are now literally thousands of these associations, each with its central headquarters from which emanates trade information. The secretaries of these organizations send out news letters, call conventions, make investigations, and otherwise try to keep their members in the vanguard of progress.²

A special sort of society which has lately become very common in the food trades is the coöperative selling and buying association. These try, merely, to give their members the benefits which come from the buying or selling of goods in quantity lots, and the savings made by so doing are very real and very attractive.

THE GRAIN AND FLOUR TRADES

Grains are by far the most plentiful of our food bearers owing to their ease of production. They do not give, however, the growth and energy elements per unit which are found in some other farm outputs—the meats, for

² Duncan, *Marketing; Its Problems and Methods*, p. 214.

example. Grains—except corn—form the universal cash crops for the American farmer and, as a result, fill a big place in his crop programs. Market devices, too, for grains are better than for any other farm product. Trade boards or exchanges give to this trade a sort of sales agency which has no equal among the other middlemen facilities. Rail and boat carriage also is easiest and decay lowest for grains of any of the foodstuffs. Further, they are, as a rule, marketed in bulk, thus doing away with costly containers, and in addition, owing to a certain flowing quality, they move from one holding vessel to another with almost the ease of a liquid.

The commercial grains in the order of their money value are corn, wheat, oats, rye and barley. While all of these are bought and sold upon the boards of trade, their marketing features are quite different. Corn enters less into trade than do any of the others. More than 20 per cent of this crop grown in any locality, it is claimed, never leaves the place at which it was produced. This failure of corn to become an article of commerce is in nowise a matter of mystery. It is due solely to the fact that the cereal is very bulky as an article of shipment and its keeping qualities are not good. In addition, custom makes it an animal rather than a human food. Its nutrients are sold to better advantage, in other words, when changed into animal tissue than when offered in their primary form.

Wheat is the first among the grains for marketing purposes. Its widespread welcome among farmers as a crop and its still more widespread use upon the consumer's table have already been spoken of. This sets up a need in the wheat trade for the largest and most complete scheme of handling which the middleman pursuit affords.

Strictly speaking, there are three trades covered by this term, wheat trade, instead of a single one. There is, first of all, that of the wheat handling itself; then that of the fully organized trade in flour; and, lastly, that of the baking industry. Each of these has its own fully manned staff of middlemen, its own outfit of devices, its own markets, and its own separate trade societies. The dictum is laid down by some students of markets that every change in form through which a material goes in passing from grower to consumer makes a "marketing cycle." This would show that in the case of the wheat trade there are three such cycles. Probably these are more plainly shown in this trade than in others on account of the long history of the wheat trade. It has had time to develop. At any rate, the three stages told of above are clearly seen in this major grain trade.

The grain trades rank first in merit among the food trades as to marketing success. This they achieve through three main reasons: (1) the widespread use of grain exchanges or boards of trade of which the one in Chicago is typical; (2) the use of the elevator system for the storing and handling of grains; (3) the grading and standard-setting rules by which grain is classified. A brief discussion will now be given to each of these agencies.

Although grain exchanges have had much harsh criticism in late years on account of the "future" or speculative sales which they allow, much may be said on the other side in their favor. The following merits, at least, may be claimed for them. First, they give a common open meeting place, where the buyers and the sellers of grain may meet. A market place of this sort is a great saving of the trader's time and energy in the feat of trading. The benefits, indeed, which may be gained

through this facility are of a well-known sort. They are similar in fact to those gained from the common public markets of our cities which have now become so widely used everywhere. Both marketing places give a convenient meeting place where buyers and sellers of food products may get together without having to hunt each other over a whole city. Both provide for orderly trading. Both serve in these ways to save the energies of the traders.

The huge volume of trading which takes place in such an agency as the grain exchange has still another happy result. It serves to draw forth the highest talent from among middlemen, since bulk trading in a staple is worthy any one's efforts. Buying and selling of this sort, therefore, by which supply, at any time, is balanced with demand must be done of necessity in the most broad-minded and efficient way. In addition, the exchange is also an open market, where any authorized buyer or seller may freely come and carry on his business. The actual buying and selling, indeed, is carried on openly in the full glare of the public eye. Every trader as a result may know at all times the prices of grains and the amounts being bought and sold. The practice, common to shops and stores, of private and even secret deals, are not common practices on boards of trade.

Again, the better arts and customs proved by trial to be most suitable for marketing things become the rules of the market through adoption by boards of trade. The rules dealing with grades and standards are a case in hand which may properly be given here. Grains, it is plain, are too bulky to be actually brought upon the floor of the exchange for trade purposes; neither can they be packaged and sent there. Some plan must be used, therefore, for

trading in this commodity without the necessity for either of these things. The method of sales by description or by sample are alternative methods, and these are the methods which have been adopted. For many years, the grain exchange dealers had a homemade set of grades for local use only. These, however, would not do when a world commerce in grains had grown up, and other markets were brought into the trade. Some fair and just power, therefore, must be called upon to apply the standards. This power is at present the local state authority but the keeping up and making of the grades is still left with the grain exchanges.

Further, a continuous market is another merit which arises from these exchanges. They give steady markets for the commodity dealt in from day to day the whole year round, and this is a great boon to production. Growers of such foodstuffs are always certain of a market for their commodity at one price or another, no matter when they may wish to sell. The grower of grain anywhere, therefore, has no fear in shipping his product to a grain exchange. He is certain of being able to make a sale; he has always a continuous market at his disposal. The claim of these markets is well borne out by the fact that "they will buy and sell all the grain in the world at one price or another every day of the year if offered."

Lastly, a market price is given each day to grains by these exchanges which is made use of the world over. This comes up through the daily success of traders in equalizing the demand for grains with the supply through the process of buying and selling: the price adjustment which takes place here becomes the so-called "market price" for the day, and its worth to the public can hardly be overstated. The trading in grain for that day the

country over will be made on the basis of this board-of-trade by-product—the market price. The utmost reliance is properly placed upon these “market prices” by the trading public. They, indeed, are not the results of a mere academic estimate as to how much per unit of grain the status of supply and demand warrants. Far from this, they are the actual sums in fact which have been used in buying and selling grains as swayed by supply and demand.

These are real prices, in other words, instead of assumed ones. Practical traders have shifted grain among themselves, from one to the other, during the day on the basis of this price. They have done this in their endeavors to make a profit out of the natural lack of balance between demand and supply and thus have arrived at the market price. News as to daily market prices is now being radiographed by the Federal Department of Agriculture to growers of trade stuff and to the wholesale buyers. Market sheets of the daily press and trade papers have of course always furnished this news. Indeed, these prices now form no small part of the daily news which the public must have.

The speculation which has grown up in these markets, and on account of which they have been so harshly abused, comes up in the regular courses of traffic. It arises in part from the custom of selling stocks of grain, which are not at present owned by the trader, for future delivery and is known as “short” selling. The intent in these sales is no different in spirit from that which moves every seller when he tries to get more for a product than he paid for it. The house-building contractor sells something for future delivery. This he does when he makes his contract to provide a house which is not yet built. He, too, takes the chance that the contract price is higher

than the future price will be, and relies upon this difference to give him a profit.

Two real merits, at least, may be claimed for sales of this sort on boards of trade, and they are genuine merits. The first of these is the one that they give a true forecast for all concerned as to the future trend of prices. They show in advance the probable status of supply and demand in respect to the food product in question. The second is that they afford the means also for the use of that very cheap form of insurance known as "hedging." A fairly careful canvass of the especial studies which students have made of speculation on boards of trade shows but a single view. All agree, in brief, that no serious charges may be laid against "future" trading except the single one that it encourages the taking of hazards on the part of the unwary and untrained. Gambling of this sort is said to be promoted by future trading. Certainly in a nation like ours, however, where public opinion combats gambling of every sort, where lotteries are taboo and gambling machines outlawed, this is no mild charge. One should not be too ready to overlook the weight of such a complaint.

We now come to the second of the notable agencies in the grain trade—the storage devices. The grain elevators, as these storage devices are called, fall naturally into two classes—the local type and the terminal elevators. These two facilities are really unlike in their parts and in their general looks, though going by the same name. Each renders, also, a different service from the other. Local elevators are found in the villages and small towns of all regions where grain is grown, and are placed, usually, near some railroad or waterway. They are tall, stark buildings having means, as the name implies,

for lifting grain to the upper floors for storage purposes. Gravity carries it downward from here through devices for cleaning and grading, so it is fitted for delivery to some car or boat for shipment. Elevators are held as property by several styles of ownership—often by farmers themselves through coöperative elevator societies. They are more often owned by local shippers, and by large grain concerns which keep up the so-called “line elevators.”

Terminal elevators are different in looks from those of the local variety. They have for their chief purpose the storage of grain for long lengths of time, though, here, too, much cleaning, grading and blending is done. They are found in the large cities and are often built of cement, looking, when so built, not unlike a battery of large tubes standing upright. Elevators of this sort have been made public utilities in some states and are subject to the same kind of rules and control as are the railroads and hotels. In other words, a public utilities commission has the power to fix rates and terms of service for this sort of business. Further, in the case of the elevators, they apply grain grades and make all the needed rules which have to do with the elevator service. A long and fierce struggle took place in the grain trade before these devices were made subject to the public will. Control of this sort was needed, however, if the small and the large grain dealers were to receive the service on similar terms.

Grain grading, the third of the marked agencies of this trade, is a long and somewhat complex process. A rough sort of grading is gone through with at the place of first shipment. Here, the local shipper of every kind must come to some decision as to the grades which lie before him in order to buy with safety. But the final and official fixing of the classes to which the grains

belong is made by the state itself in the way already told about. This is done upon the arrival of the cereals at the final market. Not only are the grain grades themselves many in numbers and somewhat elastic, that is, a question of personal view on the part of the graders, but the devices by which the feat is done are far from simple. At the terminal elevators, grains are also graded from the point of view of milling and shipment purposes—ends which result in different grades from those made as a help to commerce. The “blending” of grades also is often done here in the interests of a higher profit.

Grains are capable of being graded through the fact of being durable, and also through having certain plain marks or traits which tend toward uniformity. The feat cannot be dispensed with in the sale and purchase of grain in large amounts. The prices, indeed, at which grains are sold differ by no small amounts as between one grade and another. Again, graded grains, as pointed out before, may be sold by description, or at least by sample, and in this way great savings are made to the grain dealers.

Graded grains, too, though the property of many different owners, may be mingled together and stored “in bulk” in terminal elevators. They need no other badge of identity than the grade to which they belong. The saving of expense from this fact runs into large figures in the management of an elevator. Were the method of doing this otherwise, separate storage places must be provided for each separate shipment at high added costs for buildings and handling. Grain also, if graded, may become the basis for getting credit from banks. A warehouse receipt for a grain consignment of known grade shows the presence of certain property just as a trunk check or a land mortgage does. These storage receipts

make, therefore, as good bases for credit as do stocks or bonds. The fact that no trade in wheat which involves less than 5,000 bushels is allowed on the Chicago Board of Trade pays a tribute also to the merits of some scheme of grading. Such a bulk, of course, could not be dealt in save by description, and this calls for grading.

The flour trade is in many ways so closely tied up with the grain trade as to seem like a mere extension of the latter. The War Food Board, indeed, was unable to separate them from each other, and handled both as a single trade during its period of control. Separate trades they are, however, and a few words may be suitably said here about the smaller pursuit. The flour-trade personnel is made up of the millers, flour jobbers, and wholesale and retail grocers throughout the country. The whole class of these last named tradesmen in fact deal to some extent in flour and other grain products. The flour trade shows in one respect, a marked contrast to that in grains. This it does with regard to the location of the markets. The grain markets, as one easily sees, are near the places of grain growing—Duluth, Kansas City, etc. Quite the reverse from this, the big markets for flour are found near the centers of population in the cities of the Atlantic tide level. The making of flour and allied products, on the other hand, as every one knows, is localized in certain states of which Minnesota is the chief. No city in any of these states, further, excels Minneapolis as a center for flouring mills and in annual flour output. Flour making, in other words, is markedly an industry of the so-called middle border.

Curiously enough, in spite of the marked response of milling to the large-scale business scheme of organization—witness the Pillsbury and the Washburn-Crosby

mills—no move toward the union of flour mills into trusts has thus far been seen. This truth is all the more notable, too, through being a fact of an age given up to “big business” and to monopoly. An age, indeed, when most other basic pursuits have shown strong get-together traits. Possibly, it is the lurking fear of the thousands of local or custom mills which holds such a movement in check.

The trade is fully organized, upon a country-wide basis, through what is known as the Millers’ National Federation. This is made up mostly of commercial millers, or, in other words, those who do business of a state or nationwide size. The custom millers have a separate organization from that of the commercial millers which is of more recent birth and of far less influence. Some data here with regard to the flour trade generally may throw certain aspects into relief, and avail further toward giving a worthy view of the trade. The use of flour in our country, to begin with, is equal to a barrel per capita. Four and two thirds bushels of wheat are needed to make this barrel of flour. The bulk of our export flours has been growing less for many years, owing mainly to the growing amount which is needed for home use.

MEATS AND LIVE-STOCK TRADES

The foodstuffs of these trades are rich in food elements, but are of slow growth, have a high cost, and are hard to distribute. The marketing of meats and of live stock is a matter of much risk. First, because of the fact that meats are semiluxuries, and, as a result, have no certain demand; second, because the raising of live stock is much affected by disease and great losses result from this source; and, third, because the marketing outfit for meats and for live stock is complex and costly.

To offset these, however, in part, credit is more easily obtained from banks and other agencies for live-stock growing than for any other farm product.

The most striking feature of the meat and live-stock trades is the monopoly of these pursuits held by the great Chicago packing houses. These firms, it may be said with truth though in trite phrase, are the ones which made both Chicago and the meat trade famous. They kill over half the animals and sell over half the meat which is sold each year in the United States. Through their huge packing plants in all the live-stock regions and their branch houses for marketing in all the meat-eating centers, five firms hold the trade everywhere in more or less complete control. Each handles all kinds of live-stock products. The ample facilities of each enables it to kill at will daily either swine, cattle or sheep, or all of them alike as the market demands. These concerns produce the largest value of product of any factories of the country. They are easily, therefore, among our very largest types of business.

The packing plants, too, aside from records of this sort, are used far and wide as the classic examples of the ideal, large-scale business organization. They secure always the full number of the well-known savings known to this sort of business. Savings such as those obtained from the care of by-products and from the use of experts are among these economies. Though swine are killed and dressed by them at the rate of 20 per minute, no bit of the animal goes to waste. In addition to the dressed carcass with its many "cuts" and varied cures, the Federal Trade Commission lists no less than 113 further products—by-products—which are secured by packing-house methods.³

³ *Meat Packing Industry*, Federal Trade Commission (1919), Part I, p. 383.

These products have further, as summed up by this same authority, more than 365 uses as raw materials for other trade articles. Commerce itself would rest to no small degree upon the activities of these plants if their by-products were much larger in amount. No part, indeed, of the animal is lost, save that which dries up of its original moisture.

The history of the meat and cattle trade, in its modern aspects, is well told in the half century of growth of these great packing plants. Until the discovery of the merits and use of ice in 1872, meat packing as a factory process had been a winter industry, making use of salt as a cure. In fact, too, the making of commercial meats even by this method had had but a short history prior to this date. Cincinnati is the first city of all time to have gained, on account of its fame in this manufacture, the now widely known nickname of "Porkopolis." With the coming of icing, however, meat was left unsalted on its way to market even though it girdled the globe, and animals could now be killed at all seasons without risk. In short, the modern meat trade had come to life. At all times the meat-packing plants have followed the sources of their raw material toward the west in seeking locations. Certain proof of this is found in the present-day plan of the big packing houses in supporting factories in each of the plain and prairie cities of the frontier.

The big packers have gained vastly, indeed, from the strategic worth of their business location. On the one hand, Chicago has been the pivotal place from which the meat-packing industry moved westward. Branch packing houses to the number of ninety or more are set up on these new frontiers owned and run from Chicago, proving fully that packing houses must follow the courses

of the live-stock herds. The supply of meat raw materials is thereby secure. On the other hand, the big packers also found their location handy for the direct marketing of their products to the meat users. Branch houses for the selling of meat at wholesale—jobbing houses in brief—have, therefore, been set up by these dealers in a thousand or more cities, mainly of the east and south. Lineal offspring from these houses is found also in the gas-driven car which has proved a further boon to these great companies. Auto-truck stations to the number of many thousands have been set up. From these, meat is carried at regular periods to a custom which is too light to warrant the expense of a branch house. In addition, retail stores in many cities, and packer-owned-icing cars, have also served to give these companies a leading place in the service of the consumer.

The "big five" have had frequent and bitter quarrels with the Federal Government. The first of these arose over pure food laws and will be told about in a later chapter. Resistance to federal antitrust laws caused the second, of which space forbids a further account. Lastly, in recent years, the packers' entry into other lines of trade than those of the meats has been the chief cause of trouble with the law. The effects of "integrating" their business, from the ranch to the retail meat dealer, have been to give the Chicago packers a very efficient instrument. Devices, trade relations, and a staff were indeed provided, which were readily used in other lines of traffic. The Armour Company at one time, for example, carried on some 50 or more of these distinct lines of business, and some of the other companies went even farther. Packers owned, for example, iced cars, creameries, stockyards,

breakfast foods, live-stock trade papers, banks, and many more kinds of business.

The Federal Trade Commission's report to which previous reference has been made shows this plainly. The "big five," for example, made at the time of this report a display of over 600 sorts of articles. Many of these were very far removed from the meat trade or from that even of a trade in foods. The whole of this "side" business was brought to an end during the year 1919 when federal laws obliged the giving up of all other lines of trade, save those only connected with meat. Still later, in another way, the big packers were again curbed by law. This was through the enactment in 1921 of the Kinyon Law, the result of which is to put all the packer companies under license. By this law the public powers now have full control over the business acts of these traders, and a fuller support of public policy is looked for from them.

The meat and live-stock trades, in which the big packers are such leading factors, is further manned by another class of packers who do a nation-wide business. These are the "wholesale slaughterers." Ten only of these minor concerns, says the report of the Federal Trade office, kill as much as 1 per cent of the total annual kill which enters into general commerce. There is, as a result, little or no business rivalry between the "big five" and these latter.

Large-scale packers of all sorts, however, have this in common, that all alike secure their raw materials from the same sources. Cattle in general come at first from the ranges of the western plains. Thence they are moved to the farms of the corn belt or to some other good farming region for fattening purposes, thence to the near-by

cattle market. Cattle-grazing has no longer the romance with which it was attended in the old days of the "cow-boys," the "round-ups," and the "cattle trail," over which the animals were driven to market. But the coming of the fattened animal in the place of the traveled one has done much to better the meat yield both in quality and quantity.

Swine in wholesale numbers are almost wholly the product of the corn belt where they find their natural realm. The refuse-eating habits of these animals, however, cause them to be grown with profit upon nearly all the farms of the land. No other variety of live stock excels the hog in number of offspring. Further, his carcass being fully 80 per cent meat, he is in the front rank in yielding raw material for the packing trade everywhere. The close proximity of all the large packing houses to the corn belt makes the marketing of this animal a matter easily accomplished.

Sheep are grown mainly for two purposes, (1) wool, and (2) mutton. Centuries of able breeding have divided these animals into two groups, each yielding a special product. These groups are typified by the Merinos which are now the chief sources of our wool supply, and the Shropshires, which give us our mutton. Besides this, the grazing places of these two breeds have been isolated into almost distinct areas. The hardy Merino thrives best on the rough, hard life of the western ranges, while the mutton kinds must have the careful eye of the herdsman on the farm. Furthermore, the heavy grain feed so well fitted to the swine of the corn belt is not needed for the best growth of sheep. The mutton trade, therefore, gets its raw materials from quite different regions from any we have thus far told about. The pastures of the

northeast and north central states are the sources of this supply rather than the places of more plentiful food.

Live stock of every sort would be hard to market in the quantity asked for by modern traffic were it not for the help of the city stockyards. More than 50 of our cities now have these devices, and their aims and methods are everywhere the same. They are made up in short of well-found yards, houses, and outfits—and these of such sizes as may be needed to take in, herd, and feed live stock of every sort. They must be ready to do these things, too, at all times for any droves which come to the city by night or by day. Owing to the nature of the services given and the fact of the public control kept over them, stockyards may be looked upon as semipublic utilities. It is not too broad a figure, indeed, to refer to them as live-stock hotels. Added to the housing services spoken of above, the stockyards, further, must also have means by which buyers and sellers may meet together for exchange, that is, a market place.

Stockyards, indeed, are owned and managed by proprietors who look upon them as public utilities. Some are very large, as, for example, the one in Chicago which includes more than 500 acres, and has a capacity for the daily handling of a half million animals. To these markets come the agents of the country shipper—usually commission men—who act as salesmen. Hither also come the buyers—in the main, agents from the packing houses—and sales are made between these two at any prices which are agreeable. The rules and methods of these markets are laid down by groups of traders working through live-stock exchanges. Under these rules the stockyard markets go far toward becoming that much desired type—one which is open, convenient, and continuous.

THE PRODUCE TRADE

The term "produce" is used to name such widely different things as vegetables, dairy and poultry products, and fruit. No single trade can possibly handle such a variety as this, so there is little that is definite in the title "produce trade." Each of the foodstuffs named above supports, therefore, a separate trade, and these latter indeed are also subdivided into further trades. Citrous fruits, for example, have a different marketing system from that of deciduous fruits, and the potato, though a vegetable, has a market of its own. Butter, cheese, milk, eggs, and poultry each have trade systems which are separate and distinct from the others. Different varieties of each of these, indeed, often become the bases for new and extensive pursuits. Some bonds of identity there are, however, which, besides the fact of common practice, group all of these together into one class and these bonds will now be described.

Perishability, for example, is a quality which marks the stuff of all the produce trades. No other trade obstacle is harder to overcome and, therefore, more costly, than is the keeping of perishable stuff from decay until it can be marketed. A dollar's worth of durable foods, wheat for instance, can be carried the width of the country and stored, graded, and finally marketed for a trifling cost. But a dollar's worth of produce, kept for only a short time, causes, through icing fees, spoilage, and sales charges, a cost fairly equal to the first price of the article itself. It is claimed, in fact, that from 30 to 40 per cent of these products spoil on their way from grower to user.⁴ Again, the market for the goods of this trade is highly whimsical.

⁴ Adams, *Marketing Perishable Farm Products*, pp. 20, 21.

Details with regard to containers, to color and to form, tend to have places of large weight in the fancies of produce users. The market tests for grading produce in fact give as many points to the eye appeal as they do to the flavor, the quality, or the growth and force factors. Apples, as a case in hand, are scored under the Ontario Fruit Growers' Tests with 5 points given to form, 15 to size, 20 to color, 20 to uniformity, 25 to freedom from blemishes, and only 15 to quality.

Produce, too, is in the main a by-product from general farming, though there is a growing number of especial fruit, dairy, poultry, and truck farms. The trade system for handling produce is, therefore, far less developed and complete than that for the grains and meats. The market for produce is more elastic, too, than is the case with regard to other farm products. Staple foodstuffs tend to have the same demand whether the price is high or low—bread must be had, no matter how high the price. But, with produce, generally speaking, the situation is different. If the price of this latter shifts either up or down, the demand in response will also be varied. Growers of produce, therefore, do not have the same certainty of a stable market that growers of staples do.

Perishability and the lack of a nation-wide produce market are no doubt the causes of the many trade spasms which are found in this line. The well-known gluts and shortages and violent price changes which occur in the marketing of farm products take place more often in this trade than in any other. It is not a rare thing, indeed, that in near-by counties fruit or potatoes may be rotting, unharvested, on account of an overcrop, while in the next county these foods cannot be bought at any price. Professor Adams, in his treatise on "Marketing Perishables,"

gives data which prove that, within a few hours, "the price of almost any fruit or vegetable may fall eighty per cent or rise four hundred per cent." ⁵

The marketing costs in the produce trade are the highest of any in the whole food-distribution realm. Less of manufacture, indeed, is needed in fitting these products for the user's table than is true of any other major food-stuff. Custom and native qualities permit the use of these in the natural or raw state. Still, in spite of this fact, the fruits and vegetables have been the "horrible examples" used for showing price "spreads" in all the middleman warfare of the past few years. Adams claims "that the marketing costs for fruits, vegetables, and dairy and poultry products equal in amount some sixty or sixty-five per cent of the price which the buyer pays." ⁶ On the other hand, for all other farm products the costs range from 20 to 40 per cent. Here, as was said before, it is the frailty in make-up of produce which causes the chief expense. There must, indeed, be wide price margins to the owners of such property, when it is recalled that products of this sort may decay into uselessness within a few hours, or at least a few days.

Produce, in addition, is hard to grade and, as a result, cannot be sold readily except by actual sight and touch. Frailty is again the great weakness. Produce which, within a few hours, unless costly checks are used, will suffer a marked change through decay cannot be kept up to grade except by great expense.

Foodstuffs of this sort are marketed many times on their journey from the grower to the user. This results from being so largely a by-product from general farming.

⁵ Adams, *Marketing Perishable Farm Products*, p. 17.

⁶ *Ibid.*, p. 21.

All kinds of produce apparently, which enter regular trade channels, are assembled together in the first place by a local shipper, a country storekeeper, or a coöperative concern. Thence they are taken over usually by the big dealer in the city market—a commission man or broker—whence they are sold to the jobbing market and again to the local retail storekeeper.

Chicago holds a place in the van with respect to produce marketing the same as she does with respect to most other foodstuffs. No other city in our country—perhaps in the world—equals this city in the quantity of produce handled. South Water Street, too, within Chicago, is the local center which is given up to this trade and to this alone. It is said to be the busiest street in the world.⁷ It is nearly a half mile in length and along its sides there are more than a half thousand wholesalers who deal in produce. No kind is left out and even fish and game are often upon the list. Produce auctions are also found in the vicinity of this street. These newest devices for giving speed to the movement of foodstuffs have a bright future before them. They are the means by which huge amounts of the more quickly perishable fruits may be rapidly, cheaply, and safely sold. They are in reality the board of trade exchanges for produce and have many of the features of these larger markets.

Warehouses and their modern offspring, the cold-storage plants, are the typical marketing devices of this trade. The exact services performed by these two agencies are in part hinted at by their names. The warehouse so far as it serves the produce trade is mainly a "carry over" device. It stores stuff during periods of low demand for use at other times when the selling outlook is better.

⁷ Nourse, *Chicago as a Produce Market*, p. 14.

Oftentimes, the sorting, packing, and labeling of produce go on with the main work of the storage house, owing to its convenience for these purposes. In addition facilities for the insurance and selling of goods and for the financing of them are also often given. The warehouse is commonly dealt with as a public utility, being subject to public control, and is even built and operated by the public in some of our western states. The use of public storage places arises from the growing distaste of city dwellers for houses equipped with storage places. These places were known in the homes of our fathers as cellars, butteries, and storerooms but are no longer welcome. Warehouses of all sorts, therefore, have a certain and definite service to perform in our economic system which gives them an assured future.

THE FLUID-MILK TRADE

The trade in fluid milk is the most modern of the big food pursuits. The handling of fluid milk on a large scale has come about only with the discovery of certain great devices. These are notably the Babcock test for purity, the Pasteur cure for germs, and the bacterial count for cleanliness. Agencies of these sorts have given the means for grading fluid milk and, true to principle, milk when graded, may be sold in bulk. The trade, indeed, in spite of its short history has already become one with which the public could least well do without. The need of milk in the human diet—at least in that of children—has few rivals in intensity. It is claimed, indeed, that the deathrate of city babes may be reckoned in terms of the lack or plentifulness of a supply of milk.

Trade milk finds its chief sale in the demands of th

cities. The open country, the villages, and the towns are commonly supplied from local herds, the family cow, or at most from some small local milk business which is carried on with very simple means. City people are not so easily supplied. The demand, here, in respect to the unit of sale is indeed small—one pint per capita per day being the American average. The total demand, however, from cities is simply huge—a matter of thousands of gallons daily for the average-sized city. Taking into account this large quantity, together with the fact that milk is very frail in make-up, that it is subject to much public control on account of the whims of buyers, that it must be gathered together in small amounts from many widely spread dairies and carried with clocklike system to many consumers, and one sees at once that the fluid-milk trade calls for the best marketing talent that can be found. The city user, besides, wants this milk in many forms, such as, classes “A” and “B,” certified, modified, pasteurized, and coagulated, cream, buttermilk and many more. He wants all of these properly treated and put up in bottles or packages. He wants them all, too, at the lowest cost possible.

The trade itself falls naturally into two parts, that of the farm dairyman and that of the city dealer. The outfit of the first is made up of a herd, a dairy barn, a milk house or cooling room, and the proper dairy utensils. Dairy barns, as a rule, must comply with regulations laid down by city boards of health. The utensils, too, are scored high or low by the same bodies according as they are well made and cleanly, or otherwise. The dairy business unit has some fairly rigid checks as to the size which it may attain, so that everywhere it appears as an enterprise of rather small dimensions.

The city dealer's business, on the other hand, often takes on a very large size and is factorylike in nature, too, owing to the large amount of machinery and the many laborers that must be employed. These dealers, in brief, clean the milk, pasteurize it, bottle it, and ice it, by the means of machinery. They then deliver the milk to customers, though this involves exchange with every family in the city at set periods of the day. Milk of this sort though costly is a boon to the public, and is lifting the fluid everywhere from the rather low status of a drink to that of a food.

The city milk dealer must also assemble the milk from the places of supply at the farms of the dairymen. This he does by having storage houses at the proper shipping points in the dairy region. Carriage to the city is then achieved by means of railroads, by street cars, and often by auto trucks. Special devices in the way of iced cars and milk cans are used in this task, and speed of service is in each style of carriage a main element of success.

The country storage station itself is often a plant of no small size. These agencies always provide storage places for holding the milk until shipment takes place, and also testing and measuring devices. Means for butter, cheese, and milk-powder making are also found in many of them. These last are made use of when a milk surplus must be disposed of—milk, in other words, purchased by the dealer in excess of the city needs.

The trade, as a whole, is carried on within cities and their outskirts—each city having, in fact, its own milk-giving area, varying in size with the city's demands. Other milk areas may not sell to this city. This is true, first, because of the frail nature of milk which hinders long-distance shipment; and, second, because the supply is fur-

nished under a long-time contract between the rural dairyman and the city dealer. A third reason is found in the fact that a city's control of milk, in order to be a real control, must reach the farm itself. This, of course, would hardly be possible, except upon farms which are fairly near the city in question.

There is, therefore, a lack of breadth in the fluid-milk market which keeps it from becoming a nation-wide market. This fact also prevents the use of the so-called "open" market methods which have proved so helpful to other farm products. The lack of these things gives the reason why the milk price, wherever found, is always a local price. The many milk "wars," dairymen's strikes, and dealers' "shut outs" which have broken the civic peace of our land during the past few years have also sprung from these marketing limits under which milk suffers.

CHAPTER X

FOOD PRICES AND MIDDLEMAN AIDS

THE custom, on the part of the modern bread winner, of giving himself to one trade or pursuit during a lifetime has now become all but complete. To specialize, as this custom is called, gives skill, and specialization is easily the typical feat of our present-day economic life. The federal census of occupations names more than 1,500 of these trades or pursuits to which specialists devote themselves, and the number grows with each decade. Trade unions and craft societies, of which there are now a host, tend to define the borders and the make-up of these groups. Unions of these sorts cherish and unify the pursuits to which they belong, and develop a trade pride and spirit which make for success. Indeed, a modern world without experts is not to be thought of.

This trend toward the expert, however, is not one of entire merit. The expert himself has many other needs than those which are fed directly by his own efforts. To satisfy these wants, he looks to other experts, and the exchange of products thus brought about is called barter or commerce. The setting aside of especial regions for the growth of certain products, of which we have spoken on previous pages, is merely the working out of this law of specialization in another sphere. Commerce indeed, both foreign and domestic, secures its volume far more from the fact of special regions than from the fact of special trades.

One can scarcely overstate the amount of human weal which has come about through the fact of this plan of exchange, barter or commerce. To those who have the gift of self-expression through the yielding of products, commerce affords an outlet for their surplus output. The real test of one's economic worth to his fellows is, indeed, the surplus he is able to give in return for what he gets. Products brought into being, in fact, cause, through commerce, the making of other products. To the consumer, on the other hand, this scheme of exchange is the greatest labor-saving device of all time. By its use, he may live where his fancy pleases, in city or open country, on land or sea, and in any quarter of the globe without notable changes in his style of living. Without commerce, however, the consumer's style of living would be vastly changed. It could be kept uniform, if this great expedient were left out, only by endless trips over the earth's surface seeking from one source to another the elements which make up a food supply. Commerce cuts out all this need and saves all this labor.

MONEY AND PRICES

In the nature of things, the basis upon which commerce rests requires that the products exchanged shall equal each other in value, otherwise there will be fraud and cheating. No belief is given any longer to the old teaching that one's only gain in exchange is the loss which the opposing trader suffers. Both should and do gain. Now, since products themselves are of all sorts of values, it is plain that there can be but little of direct exchange, that is, bartering of one article directly for another. The world-wide custom has grown up, therefore, of using the thing called

money as a go-between in these exchanges. The progress shown here is of great moment. It is looked upon indeed by many as being so notable that the epochs of human advance are grouped as "money epochs," or "barter epochs." The money device, indeed, is so agreeable to our ways of doing things that, in respect to its physical form, many sorts of materials have at one time or another been used in its make-up. It has had, too, its origin freely from the hands of government and from those of private persons. It also has been of many kinds, grades, and uses, and the offspring of many nations.

Aside from acting as an exchange go-between, money also serves as the test of the value in things. It is given this task by law, and is divided into a suitable series of grades for the handy doing of this service. Even when the barter or direct exchange of articles one for the other takes place, people first measure the value of these goods in money, although no money is really used in the whole transfer. Money-measured values of every sort are called prices, and we have high prices or low prices exactly as the money equal of a commodity is large or small.

Value measuring for exchange purposes is not, as it happens, the mere mechanical feat gone through with when we measure linear or quantity sizes in the usual run of affairs. Officials, to whom traders would bring their goods in order to have their money values measured or, in a word, priced, could have been set up in every locality. This, in fact, is the method used in finding out values for tax purposes. But custom holds that exchange values must be found out otherwise. Goods are priced by having their actual title of ownership given over for an equal worth of money, or the other way about, by having the ownership of money given over for a com-

modity of equal worth. The nature of the money, therefore, used as a measure in exchange, is a matter of great weight, since it must be bought and sold in every case of value measuring. The material nature of the yardstick or steelyard used in an exchange, on the other hand, is a matter of little care, since these are only used for the occasion.

Modern peoples have tried hard to provide a money which shall possess suitable qualities for both the purposes named above. In the interests of an exchange go-between, they have used costly materials, and have had these stamped and otherwise given an identity at great expense. That their moneys may be suitable for testing the values in articles, laws have tried to make them stable. It is desired that they will measure the same at one time as at another. Indeed, the general rise in prices of all articles during the past two decades, with which every one is familiar, is a fine example of the results which come about from having an unstable money. Cheap money, high prices, dear money, low prices, is a rule which has almost the rank of a proverb among modern commercial peoples. The plan now adopted by all nations in order to prevent the up-and-down movements of money is almost uniformly the same. They set aside a suitable commodity which shall act as the standard or basic money, becoming therefore a security for the money which really circulates. Some cheap commodity which shall take the place of the standard in the actual wear and tear of doing money work is then used for circulation purposes.

The offices of money in price-making having now been told about, it is left to show what other agencies and forces help towards the setting of this most common of economic data. Price-setting for foodstuffs is clearly

a cumulative process, the farmer getting the lowest price of any which is paid. After this a higher and higher price grows upon the article as it passes through each middleman market on its way from the country to the city. The peak price of course is that paid by the consumer to whom the article is finally sold. The difference in price between what the farmer gets and what the final buyer pays is called the "spread." It is mainly the large size of these spreads which has stirred such a deluge of criticism against the middleman service in recent years.

There is nothing uniform, we find, in the amounts of these spreads, when the prices of different products are compared. They vary sharply as to the product, the market, the season, the mode of carriage, and the supply and demand. As a rule, in the marketing of a bushel of wheat, the services in the order of their size against which the spread is charged are carriage, profits to the middlemen, inspection, insurance and weighing. The spread on a pound of Minnesota butter, sold in New York, is divided out as follows: railroad charges $1\frac{1}{2}$ cents, wholesaler's gross profit $\frac{1}{2}$ cent, jobber's gross profit $1\frac{1}{2}$ cents, and retail dealer's profit 5 cents.¹ It is commonly claimed that the causes of the large spreads in the prices of foodstuffs are the relative frailties of the articles, the variable supplies, and the wastes and shrinkages. The volume of the traffic, the capacity for grading, and the bulk of the goods relative to value are also items which affect the spreads. In the degree that a commodity has these drawbacks, it will have high marketing costs, and as a result a spread of very large size.

A food product, as a rule, has many different prices in its trip from the farmer to the consumer, As it has

¹ Weld, *The Marketing of Farm Products*, p. 192.

reached one marketing cycle or another, a product will have a wholesaler's price, or a retailer's price. Or, with regard to the terms of its coming into being, it may have a competitive, a monopoly, or a law-made price. In addition to all this, its price may be one of the day, when it is called a market price; or one of the decade, the century, the age, when it is called a normal or usual price. At all times, besides, prices take the names of the markets from which they are quoted, as, Liverpool, Chicago, or Minneapolis prices. Law-made prices are used mainly in fixing the money values of public utility services and are made chiefly by city councils or by state law-making bodies. There is not a little public urge at the present time, however, for the use of this plan upon all foodstuffs, after the fashion of the government-made price on wheat during the War.

Any study of prices must soon show the fact that most articles have a usual or a normal price—this, in a free society, where any one may charge for his products all that he wishes. In spite of this freedom, the first glance into affairs shows one that articles of all sorts have fairly stable relations to each other so far as prices are in question. No one ever expects, for example, that the prices of swine will be higher than those of cattle, nor that wheat flour will be cheaper than corn meal. This never has been the case for any length of time, nor is it expected that it ever will be. These fixed ratios of exchange among things are called their normal prices and, of course, come about through the workings of scarcity and of competition. The fact of these prices is plain, and is brought up here merely to show the basis from the past on which the prices of to-day are built. The products which made up the food flow of our livings each had its price yesterday,

and this is the basis for the price of the same or similar things to-day. Price-making, in effect, then, is the daily adding to, or taking from, a price which we already have.

FOOD-PRICE MAKING

The actual process of price-making varies widely as between one food trade and another as the study of these trades shows. The grain trade, for example, has a detailed and complete system by which thousands of buyers and sellers of the cereals may easily and quickly give effect to their price views at all times. The open and steady markets for the grains kept up by boards of trade in the various large grain cities have already been told about. These agencies give an easy source of supply to every user of grain the world over and an easy market for the offerings of every grain grower and at a minimum of cost. But, in addition to this, the ready means of transfer between each of these markets and the others through their excellent trade facilities causes a further result of high merit. This result is the quick leveling up of the supply of grain among all these markets which takes place through the use of the scheme of arbitrage. Among other benefits which come from arbitrage the prevention of grain gluts and shortages stands in the forefront.

"Keeping markets in line" after this fashion also gives a uniform price for the grain in question the world over. No other foodstuff has a "world price" of this sort, and its merits are vast. Such prices have almost the force of law, since contracts for grain deals are settled on the basis of these prices when no other price is named. This is notably true of all traffic in grain futures. Prices of this sort, too, as was shown before, are the prices used upon

the local markets of both the country shipper and the city retailer. It is the price, besides, which is imputed to unsold grains and by which their values are measured. Anything so widely applied as this may well be termed "world wide" in its use.

The produce and live-stock trades have no agency so perfect as this through which country-wide sales and country-wide purchases take place. The live-stock products in general are frail and are not easily graded. They must, therefore, be sold by display rather than by the easier methods of description or sample, and this makes their marketing difficult. These trades, too, have no organized making of future prices through future trading as is true of the grains. The frailty of the product is here, again, the chief hindrance which keeps these trades from enjoying the benefits from hedging and from future trading. Some markets in live stock and meats there are, indeed, which, like those of Chicago, give prices of wide note. The simple bulk of the traffic in stock and meats is vast enough in the city just named to give the prices made here a news value, and therefore cause them to be widely quoted. They have little more weight, however, than does mere news, since arbitrage is not carried on among the various meat and live-stock markets and these are not kept in line. The products of this trade, therefore, have no real world price as is true of the grains.

The fluid-milk trade has its prices made by still another method which differs from both of those told of above. This product is sold by description, but its sale takes place within a small area—the vicinity of the near-by large city. Its price is therefore strictly a local one. Milk is usually marketed twice in its course toward the final user—once by the rural dairyman, when he sells to the city milk

plant, and again when sold by the city dealer to the city user. In the first case, it is sold by the hundredweight; in the second, by the pint, quart, or gallon. The price per hundredweight is the more notable price, since it harmonizes the city milkman and the country dairyman and is a wholesale price. It is, in addition, fixed between these two by a contract drawn each year or at even shorter intervals.

Prices by agreement of this sort are biased by the rivalry of local creameries, of milk-powder plants, by the demands of near-by cities, by the season of the year, and by the distance from the point of origin to the place of use. There are no open markets for milk, even of a local sort, such as are found, for example, in the auctions by which fruit is sold. The transfers of ownership between dairymen and city milkmen are based simply on assent between these two as to what shall be paid. This is then stated in contracts, the periods of life of which may be an entire year or, at times, only a few months. Of late years, there has been a strong trend on the part of both dairymen and city milkmen to form their members into class unions under various names. These stand thenceforth as a single man on the one side for the highest prices which can be obtained, and on the other for the lowest which must be paid. The well-known labor-union device of collective bargaining, in other words, is made use of in settling the terms of the milk contracts. Often these unions, whether of the dairymen class or of the city milkmen class, go far in the way of becoming monopolies. The price, which results in these cases, is little less than a monopoly price.

Open-market benefits in setting milk prices are seen to be lacking, when we recall that every sale of milk by a dairyman is a forced sale. Milk simply must be sold as

soon as ready, owing to its frailty and lack of shipping qualities. On the other hand, the very costly outfits of city milkmen which must be kept busy and the daily milk needs of his customers makes him seek a more steady supply of milk than an open market would give. He readily contracts, as a result, with the dairyman for a season's supply of milk at an agreed-upon price. The open market plan, therefore, is hardly possible, one quickly sees, to either group within this trade and is readily given up by both of them.

Price-making agencies and forces similar to those of the three food trades which have now been gone into with some detail are equally marked in each of the other trades. In none of them are the methods identical. But enough of likeness there is that the descriptions already given may possibly serve to suggest the others which have not been told about.

The price of a food, as we have seen, is the money measure of its value as an article of exchange. The way in which this exact amount of money is hit upon between the food owner and the money owner remains now to be shown. Or, in other words, the way in which the exact making of a price takes place must now be given. This can best be done by giving in part the motives which affect each side to an exchange, as shown by present-day market studies. Let us take up first the motives of the ones who offer a supply. The owner of a supply must rest content with the sum of money which he can get in making a sale, since the sole purpose of bringing products to market is to sell them. This fact does not hinder him from the use of advertising, of salesmanship, or of threats and menaces by which to work upon the buyer. At times, he uses all of these, and the owner of money is thus made

to give a larger amount. But, in the end, unless he wishes goods left upon his hands, the owner must accept the sum offered him by the buyer. The so-called "consumer's strike" of the year 1920-1921 offers fine proof of the general effects upon sales which the money-paying attitude of buyers may have.

From the other side it is next in order to show how much, in general, the owner of money will give for a food product. How high a price will he pay? The practice here is for the money owner, or buyer, or consumer, however named, to give such a sum of money as the thing in question is equal to in utility. If he offers more than this he wastes his money. If he offers less, a rival buyer may pick up the bargain, and the money owner will go without his desire. The balancing of the utility of money with that of food is not an easy task for the money owner, and the feat goes by the name of pricing. It is a matter of comparing, and one gains skill with practice. The money owner may choose to let his want go unsated rather than to give a sum of money which has a greater utility to him, than the offered article. Often he is freed from this hard outcome by finding a substitute which will answer as well. Either of these results will brace his views as to the utility of money when compared with foodstuffs, and he decides in this way how much will be paid. The amount of money which a money owner will pay for a food is a measure of its value. This, by definition, therefore, is its price.

Comparisons of the sort mentioned above and the part played by substitutes are so common that a fairly fixed law of substitutes has been worked out. This law may be set down as follows: substitutions are less common among necessities than luxuries; less common for habitual com-

modities than for casual commodities; and less common for wealthy people than for poor people. Substitutes, as we have seen, act to lower the prices which people must pay for things; always their effect is to reduce the price which otherwise must be paid.

On the other hand, the law of fashion or style acts in the other way. Buyers' wants may be kindled or heated as fashion suggests almost to the point of fanaticism. This is the field of want stimulation in which advertising of all sorts find its place. It wins out, too, since the consumer needs only to have his wants whetted and the worth of money, when set over against the object of desire, tends toward zero. The money is spent, the purchase is made, and prices "climb" as a result.

The pricing of food depends at every step upon the relations which prevail between scarcity and plenty. As is well known, we value those things most highly with which we are least well satiated. The water is never missed until the well runs dry. Things of this sort, therefore, are the ones which have the highest measures in terms of money—the highest prices in brief. The question may be asked, Why are we illy sated with things? And the answer is, Because they are scarce. Make the supply of things larger, and the wants of everybody will be more nearly satiated. The value of things will then be lowered, and but a small amount of money will be given for more of these less valued things. In short, their prices have fallen. No other force in price-making is more weighty than this relation between demand and supply, the effects of which in lowering prices we have now seen. This law, indeed, is the best known law in economics, and the one of widest effect in business affairs.

FOOD PRICE QUOTATIONS

Prices are among the big facts in a people's daily life, and as such they are spread widely by the press, by market sheets, and by other public organs. Like the daily reports with regard to the weather, the outcome of the baseball games, the lists of deaths, marriages, divorces, and accidents, and the doings of the government, prices make news. Buyers shape their outlays by a study of this news, and growers rule their sales by a study of the same data.

The sources of price news are found in the cities, where the buying and selling of a given stuff is carried on most often and in the largest amounts. At these places, trained men who gather news find out at fixed times the prices at which exchanges have been made. These, then, become price quotations. In an imputed way, similar products at all places are given these same prices. The grower, therefore, foresees at once his probable gain or loss from selling. On the other hand, he forms an opinion as to the future worth of his stuff, if withheld from sale. His program for further output is, therefore, guided by this fund of news.

Certain cities of especial note in the buying and selling of given foodstuffs hold places of great weight in the matter of price quotations. Cities of this sort are, of course, Chicago, whence our grain prices come, and Minneapolis where flour-price news has its birth. The popular habit of accepting as a truism the claim that general "good times" come from high prices is deep-rooted among our social ways. Nowhere is this dogma more fully accepted or loudly told, it would seem, than by the price reporter. He backs up strongly the view that man is a thing from whom the world should make a living, if

one may judge from the headlines under which his market news is reported. Here the rise in price is always hailed with epithets of joy. Indeed, these seemingly are kept down only by the general policy of the paper according as it is of the sober or of the sensational type.

The office of price news in guiding industry is, in fact, of vast moment to the public welfare. The question often arises, therefore, as to its future. Not a few are of the opinion that public supervision should soon be given to this activity in the interests of more accurate news.

RAILROAD CARRIAGE

The marketing of foods would meet with little success were it not for certain helpful devices which middlemen in all places employ. Most noteworthy of these are the railroads—the now almost unrivaled carriers throughout the whole world. Nothing is more easily seen, in the marketing of foods, than the need of this carrying service. The “place disharmony,” as it is called, by which we describe the gap that separates the food-growing locality from the one of consumption must surely be overcome by carriage of some sort. This service is now done in many and varied ways. For short spaces, the wagon or motor truck are commonly the vehicles used, but for cross-state and cross-country distances, the electric and steam railroads come into use. On water, too, the steamboat the world round is the leader over all other craft. Both as to the amounts of foods carried and the distances traveled, however, all other means of carriage pale before those offered by the railroad. Railroads, therefore, giving the typical carrying means of the age, will have the chief place in our account of middleman aids of this sort.

The same causes, it may be said by way of preface, world-wide use of similar foods and strictly local output of these foods, which have led to the need of a trader class, have also caused the growth of a larger means of carriage. Our railroad net, in its outlines at least, is now said to be complete. The country has an ample supply of roads except as to local and branch lines. Furthermore, the chances of getting good terminal places in big cities are ended. The present web is made up, then, of the ganglia-like clusters of roads in the Gulf States, the trunk lines between the Mississippi and the eastern seaboard, the fanlike systems of "granger" roads spreading west and south and north from Chicago, and the seven or eight fingerlike "transcontinentals" reaching to the Coast.

Railroads, in this country, both as to routes and numbers, have been fixed by trade interests instead of, as in other countries, by war or state needs. Traffic in goods is the big source of income to these roads, since more than 80 per cent of their earnings are secured from their freight service. The passenger traffic yields most of the balance. The lines upon a railroad map are, in fact, the lines of least resistance between one market and another. Although of many names, ownerships, and controls, the roads of the country make up a single system from the technical point of view. All are alike in their width of gauge and in their main outfits.

The benefits to the shipper from this plan, by which he may "through route" his goods over many roads from one side of the country to the other without "breaking cargo," are hard to overstate. The "through routing" plan reaches into the business side of the shipment also. The "interline" handling of traffic among the roads is of such a nature that but one charge is made for the entire

shipment—this without regard to the number of roads used or the distance traveled. Railroads have always adapted their facilities to the changing needs of trade as the large numbers of special cars, special trains, and switching means fully prove.

No one of the minor auxiliary services which the middleman gets from railroads is of more real merit than that of mail carrying. Though the service of mail delivery is now taken over by the nation, its actual handling is done by railroads. No one can over-praise the help to food traders which comes from having a cheap, quick, and trusted facility of this sort. It is by means of this sort, indeed, that middlemen keep in touch with each other as to prices, qualities and quantities of stuff. In addition, through these same means, they make transfers of money from one to another. The postal money-order system, which gives this service, is fully the equal in fact of banks or express offices anywhere in the performance of this work.

Goods also, even of large bulk, may be moved from place to place by parcel post not only among traders themselves, but to their customers as well. The certainty of getting mail is also no small element of merit. Since sovereign power itself takes over the task of mail handling, few human things are more certainly cared for. The most harmful foes at times to traffic, short of lawbreakers, are the workmen strikers, but these, no matter how great their frenzy, are careful to respect the rights of mail trains. They offer no check to the running of such trains even though all other traffic is brought to an end.

Rates, as the charges are named by which a road is repaid for its services in moving goods, fairly bristle with problems. Not the least of these is the size or amount to

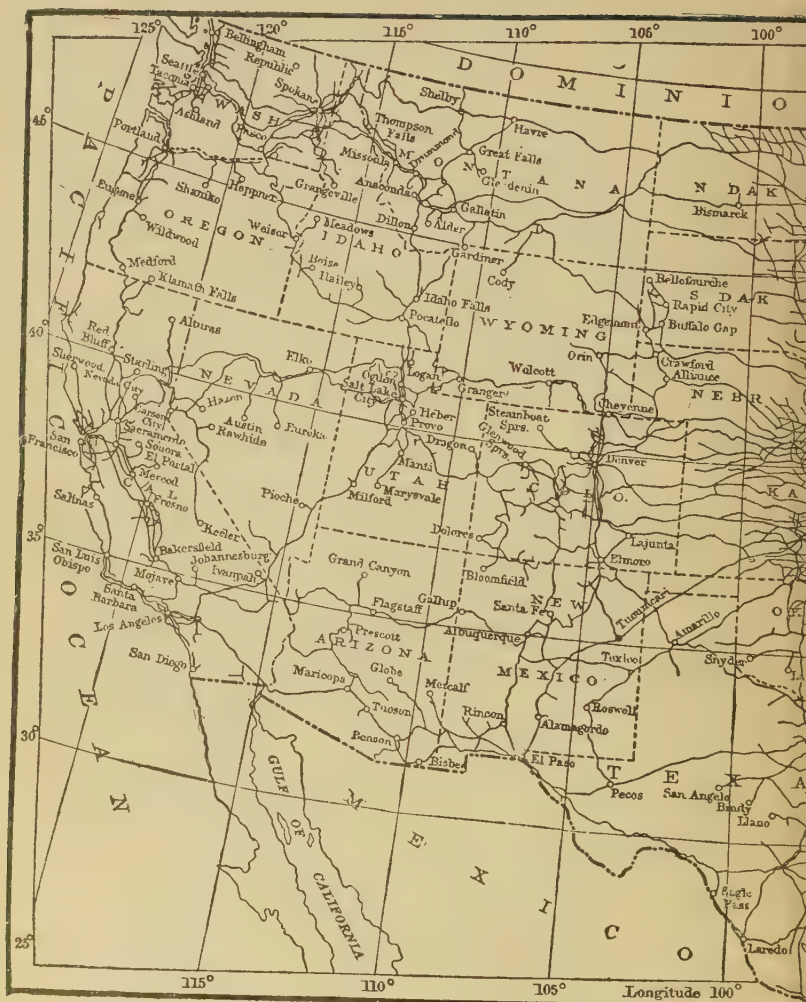


FIGURE 19.—MAP OF THE RAILROADS



IN THE UNITED STATES IN 1921

which a rate may attain. Here the monopoly rule is followed by the carriers of "charging what the traffic will bear," subject only to the limits set by government. The roadbed, buildings and outfit costs of a road are so much greater than its running costs that they may wisely be overlooked in making a schedule of rates. "Charging what the traffic will bear" means, then, that no chance for gain will be overlooked by the railroad. Trains must run whether loaded or not and an added ton of freight, which may yield only the least of incomes, is that much clear gain. Roads will carry added freight and fares for the merest trifles rather than not have the income thus secured. This they will do, since these additions cause the roads no extra expense, when taken on jointly with their regular business. On this account, roads have been kept by law from carrying people free and from charging less for a long haul of freight than for a short one.

No road tries to assess the exact costs of a service against the shipper who gets the service, but all follow the plan of charging him what he can pay. The services of these great utilities are open to every one's use because they are under the law "common carriers." On the other hand, since all must use them, they are like a branch of government rather than a mere business. Their charges in amount and nature, therefore, are not unlike the taxes laid down by these great agencies.

Savings in the running of roads have caused our lines to be grouped together into several large systems upon the basis of ownership. Thus we have the "Vanderbilt lines," the "Harriman," the "Hill," the "Pennsylvania," the "Gould," and a number of other systems, each made up of many thousands of miles of road. Indeed, the recent Esch-Cummins railroad law provides for the further

grouping of all these utilities in a definite fashion the country over. The natural rivalry among these varied systems causes each to favor some market or city in which it has special advantages, as against all other markets or cities. In this way Minneapolis or Duluth are picked out by the "Hill" roads for wheat marketing, Chicago by the Harrimans, St. Louis by the Gould lines, Detroit by the Michigan Central, and Toledo by the Lake Shore. So much is this the case that cities are often spoken of as bound up with one road or another.

Favoritism of this sort toward certain cities on the part of different systems not only betters the marketing status of these cities, but enlarges them otherwise. Growth as the result of this policy enables these cities to develop more traffic, and this is the breath of life to railroads. Besides this, roads themselves often have large realty holdings in these cities, and the "unearned increments" which comes from land-holding in a growing city makes a rich profit. Marketing, therefore, for the farmer, as the result from this scheme of groups, tends everywhere to become a matter of regions. By law, indeed, he may ship his products anywhere, but as a matter of practice the policies of his railroad fix the places with which he really trades.

Water carriage, by lakes, or rivers, or canals, rivals to some extent the roads in gaining the farmer's favor, but not with much success. The faults in these ways of traffic are many. They are not able, for example, to come directly to the farmer's premises with their services. Neither can they deliver his goods to the very heart of the cities as railroads are able to do. In addition, also, they are open for use only at certain seasons of the year,

and, lastly, they fail in having the up-to-date devices which railroads now offer to shippers.

Railroads in recent years have come under the control of law to such an extent in respect to the rights of shippers as to make them semipublic properties. The most notable of the rules to which they are held by law are as follows :

1. They permit the government to determine the rates and fares which may be charged.
2. They abstain from discriminations as between one shipper and another in the way of rebates or special privileges.
3. They must make public display of rates and fares so that all may be open to the gaze of shippers.
4. They must refrain from charging more for a short haul than for a long one.
5. They must submit to the control and regulation of commissions.

Drastic as these rules may seem from the traditional viewpoint of private business, they were not sufficient. The needs of war caused the writing of a further chapter in the story of railroad control. "Public management" would be the title of this chapter because during a year and a half of this war period the government controlled in every detail these great utilities.

Naturally, there were many savings from the unified handling which took place under this scheme of public control. Duplicate trains on rival roads between the same cities were laid off; separate railway stations in many cities were given up, and their use was thrown open to all roads coming into the city. The same was true

of yards and of freight depots. All roads, in addition, were dealt with as parts of a single system, thus saving costly outlays for duplicates in road officials, in trainmen and, in some cases, in rolling stock. In the opinion of many, the trial justified the plan of keeping up state-owned and state-handled roads for all time. A large majority of the patrons, however, and the entire number of private owners took the opposite view. All of these pressed strongly for the return of the roads to private control and this in the end was the result.

COMMERCIAL CREDIT AND BANKS

Another great aid to the middleman pursuit is credit, and to this should be added the local credit market or commercial bank. Money, though the legal measure of value and the formal medium for making exchanges, of itself is not able to perform these duties fully. There is not enough of it for one thing with which to effect all the exchanges which take place. In addition, the bustle, the hurry, and the volume of modern business makes money too clumsy a tool to fit the needs of commerce.

Money, indeed, in the daily exchanges which take place, is thought to reach fewer than 10 per cent of these, so far as acting as a go-between is concerned. Its faults, in fact, through being bulky and hard to move from place to place, are plainly seen by every one. Clearly, money is a device for a cruder age than that in which we live. To cure the defects on the part of money, the general faith or trust of people in each other is called out under the name of credit, and far more exchanges are made with this than with money. Banks, trust companies, loan societies, and many like agencies perform this task, and

therefore, are the physical parts of our credit system. The credit forms by which the faith or trust of people in each other is made use of are known by the names of notes, checks, drafts, bills of exchange, book accounts, bank notes, and many others. A very slight study of middlemen's efforts shows how widely such devices are to be found everywhere in their business.

Commercial banks are the chief agencies which devote themselves to this trade of handling credit forms. They are often defined as agencies which made credit mobile. Again, they are said to be markets where personal credit is traded for bank credit. But, at any rate, at all times they are the means for giving real effect to the faith and good will among people. This is the variety of bank which is most common, and few people there are who do not know a bank's appearance and its ways. These banks are, indeed, as their name "commercial" shows, the very product of tradesmen's efforts. The need of banks may be seen in the fact that they are now counted by the thousands among a trading people like us.

These banks get their stocks or supplies of credit with which to carry on their tasks, from the thrifty and well-to-do, partly in the form of deposits. These may be in the shape of money, of sureties or of trade paper, but without regard to the shape, they are left with the bank in return for the safekeeping which the bank can give. The bank also gives the further motive that these deposits shall be paid back to the depositor upon demand. Often, too, they give the still further motive of a small interest rate. Borrowers get this credit from the banks in return for their notes or the notes of debtors and on the payment of bank discount. Exchanges of this sort require from the borrower's side the promise to the bank of a large sum of

money at some future time. They require from the side of the bank the payment to the borrower of a smaller sum at the present time.

Banks are safe in this feat of loaning out deposits left with them in this way on "call," because loans of commercial credit are for short lengths of time—thirty, sixty, or ninety days. These loans are paid back to the bank quickly and are therefore on hand to meet the claims of the depositors when they are made. Besides, depositors rarely come in a body to claim their deposits. The banker, therefore, may by wise forethought collect the means in advance with which to supply the demands of those who do come. Finally, a small fraction of the deposits left with a bank is never loaned by the banker at all. This is kept as a sort of nest egg called a "reserve" by which the casual deposit claim may be repaid.

Banks, in addition to serving in this fashion, must guard carefully their standing with the public. Their reputation for being safe, that is, able to meet all pledges to claimants, is second only in merit to the fact of actually being safe. Dealing as banks do with such an airy, gossamer thing as public faith or confidence they often incur severe penalties for mistakes. They must, therefore, use every means within their power to keep this credit fabric from tearing or breaking down. This may be done in part through keeping intact their own credit—keeping, in other words, the full faith and confidence of the people in their soundness and probity. Some means of doing this lie with the banks themselves and make up no small part of the banking art; others come from the scheme of public control or banking system which prevails. This latter only will be noticed here, since space forbids any detailed account of banking itself.

Control of banks by the public in any exact way is, indeed, in its infancy with us. We find, however, even now that banks are set up by law at all places and are closely looked after by public agents. The methods of the law, in dealing with banks are generally of the repressive or negative type. They aim, in short, to curb activities rather than to direct efforts. This is carried to no excess, however, in view of the fact that the banking business is one of great risk and nicety. The laws confirm and try to make uniform for all banks the best practices which bankers have worked out and have made useful to their pursuit. In this way bad drifts which would otherwise sully the standings of these credit agencies are prevented. By such help, too, a new and firmly founded craft or pursuit has come into being almost within our own day.

Credit being based on faith and trust is found to be greatly helped when banks act together in a system. The strength which comes from union applies equally to faith and trust as to other things. Banking systems are therefore set up by law in all trading countries, each having the marks most suitable for its native country. A few words must, therefore, be said about the system of which our banks are members—the so-called Federal Reserve Plan.

This famous plan is the product of a long series of money panics which came to a head in 1907 in the financial crisis of that year. The taproot of the new system is found in the one thing—coöperation. Banks are bound together into a firmly founded brotherhood by this scheme. The plan tries to group the banks of the country into one great system so that mutual help may be given each other in times of stress or of panic. Help of this sort is given most fully by the device whose use has marked the sys-

tem with its name. Bank reserves are the elements of these agencies which furnish the ties that bind. Stated in the most simple form, the "reserve" plan compels banks in all regions of the country to keep up a jointly owned, well-placed "reserve bank." It further compels all member banks to use these reserve banks as storage places for their reserves. The huge fund created in this manner may be employed by member banks when in trouble. Potential panics may be stopped in this way and the dreaded "commercial crisis" be faced by the united front of all the banks.

An account should now be given of the way in which credit works as a medium of exchange for the middleman's service. Modern means of communication have stimulated the use of this medium to such an extent that its production has become almost the first function of banks. One sees at once that no small part of our money supply is itself a direct outgrowth from credit. Banks, for example, often issue their own notes, which then go by the name of money. This they do when the demand for credit among their customers takes the form of a demand for money. An amount of notes many times in excess of the bank's reserve may be issued in this way. This disparity between reserve and the amount of notes issued dubs notes of this sort with the name credit money. Governments often use the same plan in putting out issues of paper money. A small gold reserve is kept up in the treasury of the State for backing purposes. On the credit of the nation, thus dealt with, many times the amount of the "reserve" may be then issued as paper money.

A homemade money, and one which exceeds by many times the amounts of these others put together, may now

be taken up. This is the one which is used almost solely for the service of middlemen—going by the name of “deposit currency.” Exchange media of this sort arise from the widespread custom of giving written orders against one’s bank deposits. Bank checks, as these are called in the language of the market, are increasingly used as the result of their many benefits to commerce. Indorsing these checks enables them to pass from one owner to another as freely as coin or other currency.

The likeness of checks, when used in this way, to money as a means of exchange is clear, and the term “deposit currency” further describes the nature of this media. Through the clearing-house scheme of the Federal Reserve system, the area within which a check may now be used has vastly grown. Checks now make trips across the continent in the work of commerce and perform their service with greater safety than is true of money. Checks are also handy through their use as receipts and as the basis for an easy scheme of accounts. Merits of these many sorts make them an almost nation-wide medium of cheap, safe, and handy exchange.

A credit form much used by middlemen, the name of which is the result of the service done, is the bill of exchange. These arise from the very act of exchange itself, and are closely akin, as the name implies, to the well-known due bills of our household economy. Bills of exchange, however, are those which go with the shipment of stuff from one middleman to another. They must be paid, if a bill of lading goes with them, to a bank or other agent before the stuff in question may be obtained from the carrier. Banks, indeed, in shipping centers, often give themselves up to the handling of these credit forms alone and are thenceforth known as exchange banks.

These credit forms, in fact, are almost the only ones used in settling up exchanges between traders of different nations. This circumstance gives rise among exchange banks to a traffic in these credit forms themselves. They have now, therefore, a definite price known as the "rate of exchange" by which they are bought and sold, and regular markets and groups of tradesmen.

The brief accounts just given of certain typical credit forms used by middlemen are useful mainly in an illustrative sense. The many others, such as notes, drafts, mortgages, book accounts, and warehouse receipts are equally worthy of notice. The ones mentioned, however, may effect our purpose of merely hinting the part which is played by credit "paper" in the work of food traders. Brief as this account is, it urges the fact of the great utility of credit. Indeed, the lack that would prevail in a money régime without credit is as bad as the lack which would prevail, in a purely barter régime, without money. In truth the huge numbers of daily exchanges which middlemen make compels the use of both of these devices everywhere. Both of them, therefore, are at present in constant use.

CHAPTER XI

FOOD ABUSES AND PURE FOOD

THE many kinds of foods which prevail and the vast array of forms which they take upon the market make them liable in the extreme to dilutions, to imitations and to frauds of many sorts. Sometimes these ill-treatments are needed and, therefore, are worthy of praise. The "victory" flour, for example, which came upon our markets during the last year of the War, was by law one part corn meal and four parts wheat flour. Yet this mixture must be bought by the consumer under penalty, if choosing otherwise, of buying certain hateful substitutes for wheat flour. Among the enemy peoples these law-made food dilutions were even more common than among us. We read in Kellogg and Taylor's little book, *The Food Problem*,¹ that in Germany,

the dilution of flour was of little importance so long as it was carried out by the use of other grains for mixing; but it became of nutritive importance when this was no longer done, and the stretching of the flour was carried out with potatoes.

And, in the United States Department of Labor Report that

roasted grape-skins and asparagus-seeds were used in Germany as substitutes for coffee and the dried parings

¹ Kellogg and Taylor, *The Food Problem*, p. 82.

of apples and pears when chemically cleaned made an excellent substitute for tea.²

FOOD ABUSES

The abuse of food on a scale large enough to make it a social menace sprang up with civilized peoples in the main only after food became an object of commerce. The self-sufficing style of food supply, which was found among us until the Civil War, gave no motive for food abuses. In the nature of things no grower of food would debase the materials intended for use upon his own table. On the other hand, the almost complete and world-wide dependence upon exchange in our time for the food supply has altered all this. Indeed, we now know neither the source nor the travels of the food upon which we live.

This lack of identity between our food and any dealer from whom we buy, save possibly the last one, leaves wide-open doors for frauds, dilutions, and any other abuses which may prove of profit. Unluckily, too, this mystery which shrouds the past of all market foods steals away the motive for honest trading which otherwise might work on the part of dealers. "The evil-doer loveth darkness." Some branded foods, indeed, keep up the good name of the dealers named by these brands, but the great mass of our food is unbranded and must always remain so. Indeed, the terms under which food is now handled are of such a nature that competition, instead of weeding out the vicious dealers, acts quite the other way. It tends to lower the level of all dealers down to the plane of the least honest, instead of spurring the vicious ones to greater probity.

² Bulletin in United States Bureau of Labor Statistics, p. 46.

The growth of public control over food purity has been very slow and tedious. The legal doctrine of the buyer's duty to be alert is firmly fixed in our social beliefs as the oft quoted maxim "caveat emptor" plainly shows. Many food abuses and even scandals were needed therefore before lawmakers would disturb this old and sacred precept. In the early nineties a few state governments enacted pure-food laws, but these were strictly local in their scope. A thorough-going control of food purity was begun by all classes of law-making bodies only after the adoption in 1906 of the federal pure-food law. This became the model law which all others followed.

A display here of the more common food frauds which these laws tried to stop will reveal to some extent the size and nature of their task. The list given below was prepared by Mr. Paul Pierce of the *National Food Magazine* and is so complete that it is quoted without alteration.

1. The substitution of cheaper meats for the genuine article in potted chicken and the sale of diseased, tainted, and filthy meats.
2. The canning of an inferior grade of fish, or even a different kind of fish, under the name of a better species.
3. The coloring of cheese, butter, canned fruit, jellies, ice cream, tea, cakes and other products with coal tar and other dyes, and misbranded cheese in respect to the country where made; the selling of oleomargarine for butter.
4. The mixture of rye flour, Indian corn meal, wheat flour, and other ground cereals for buckwheat.
5. The adulteration of canned corn with saccharin, maize, starch, and bleaching agents, and rye flour by the admixture of flours of other cereals.
6. Fruit juice preserved by means of antiseptics; fruit syrups imitated by synthetic products, and jellies flavored and preserved with artificial preservatives.

7. Olive oil adulterated with cotton-seed oil; milk with chemical preservatives and water; peppers and spices with coarsely ground shells and fruit stones.
8. Filthy and decayed tomato pulp used in the making of catsup.
9. Candy coated and painted with varnish and even soap stone, and containing sulphites, paraffin, gambirizoin, shellac, and stearins.³

FOOD SCARES

Food scandals or "scares," by which the public was awakened to the vicious aspects of our diet have not been infrequent in our history. They have usually sprung, however, from threats to health, rather than from mere abuses of our food grades with bad materials. In spite of this, these threats have stirred popular interest in food dangers and have put the need of reform laws more and more beyond question. In point of date priority, the pork trichinosis scare may be thought of as coming first among these national alarms over the abuse of food. To no small part of the human race, the general dislike of pork as food, as every one knows, has been a matter of proverb. In the early eighties, however, the discovery of the deadly trichinae in American pork acted as the cause of a mild panic. The alarm became acute rapidly too, it would seem, since within the years 1879 to 1881 every big power in Europe, save England, forbade the use of American pork as food to its subjects. Indeed, something in the nature of hysteria seems to have overtaken Germany, since that country not only banned our meat, but even forbade its passage through the German domain on German railroads, or its entrance into German ports.

³ McLaughlin, *Cyclopedia of Political Science*.

The dispute soon passed from the realm of health to that of commerce and was then put upon grounds which were not new to any one. It was soon seen, in fact, that the taboo on American meats in some countries was in the interest of the local herds and flocks rather than in that of public health. Before the matter was ended, the dispute had become so heated between Germany and ourselves that our minister to that country was made to resign, and acts of reprisal were passed by Congress. As the quarrel cleared up, it was found that hostile peoples would be satisfied if some scheme of meat testing should be put into use by our people. In 1890, Congress adopted such a scheme of oversight and the bans from foreign lands were at once taken off.

The menace from milk as a source of tuberculosis was the cause of the next great food panic which broke our usual ease of mind upon this subject. In the early nineties, milk had but lately become a widespread article of commerce. Troubles in keeping it, in moving it, and above all in grading or bringing it to a standard, had made an earlier traffic in milk a hopeless task. Machine devices, now familiar to the milk trade everywhere, were soon to overcome these hindrances in a perfect fashion, and the vast fluid-milk traffic was to become a reality.

The new science of bacteriology, however, at this moment made known the fact that milk is an almost ideal germ-carrier, and of these none more often than those of the dread tuberculosis. The depth and extent of any public alarm have, in general, a good measure in the reaction from public opinion which takes place. The force of the curative means, therefore, which are used to stop a public terror is a good sign as to how much of a menace was really offered.

In the case of the milk-germ scare, two only of these cures need be mentioned here, but these two are of ample vigor to serve our purpose. The first of these cures which the scare brought into being was that named after Dr. Pasteur, its author, himself. This was the widespread legal exaction that milk should be made germproof through the use of heat—a practice which is now so much a matter of custom everywhere. The so-called “boiled milk” furor—“boiled milk” being the early popular notion of this remedy—promised, indeed, for a time to do more harm than did the germ itself. But a better vision of Pasteur’s great remedy soon gave relief from this rough treatment of the fluid. New methods were devised, and the process is now no longer looked upon as harmful in any way.

The second of the curative means made use of to curb the germ danger was but little less drastic in its effects than was the first. This remedy was, in fact, that of the now well-known tuberculin test by which infected herds are everywhere examined. Costly as this remedy is in dairy cattle, few states have failed to pass laws for its use, and few city boards of health have paused in putting it into force wherever suspected cattle may be found. Finally, the opinion given out by the great germ expert Koch in 1901, that cattle tuberculosis could not be given to human beings through milk, put down in no small degree the alarm which for more than a decade had been stirred up over this fluid.

The packing-house scandals of 1906 had to do with the fitness of meat for human use and made the third of these great nation-wide scares. These huge business concerns had come by this time to furnish the major part of the market meat which the nation consumed, and this very

size itself stirred no small amount of feeling against them. Public opinion had been but lately moved to a hostile state also by the "embalmed beef" charges of the Spanish-American War. These charges were, in brief, that the meats sold to our soldiers during this war were treated with chemicals to such an extent as to make them unfit for food. They were "fixed" with chemicals, indeed, to the point of being able to endure forever. The war-board inquiry which followed the public outcry on this subject caused the removal from service of the army commissary head. It had to do in a more remote way also with the passing from office of the Secretary of War.

The new attack against the methods of the packing houses was brought about by the printing of Upton Sinclair's book, *The Jungle*. This moving romance painted in vivid colors the hideous state of filth which prevailed in the devices for meat making in these great plants. In reply to the public outcry raised by this book, a board of inquiry was set up by President Roosevelt, the report from which backed up in the main the claims of *The Jungle*. This report was sent with a special message upon the subject to Congress, and a rigid meat-inspection law was at once passed by this body. The packing-house scare is unique in the annals of our food panics, both because of the nature of its origin, and also on account of the speed with which a cure was found. There were, in fact, only a few months of time between the printing of the book, the report of the special board, and the passage of the meat-control law.

Food scares of a minor sort but of the same general result in forcing a public regard for pure food have not been infrequent. The baking powder dispute of two decades ago and the chemical preservative wrangle ten years

later are instances of this sort. The matter at issue in the first of these cases was the question of the use of alum as a baking-powder element. In the second, the use of benzoate of soda, formaldehydes, and other chemicals as food cures were the subjects at issue. Both reached the status of public questions, since both were the subjects of laws, for or against, in many of our state lawmaking bodies. The dispute over chemicals had indeed the still further fame of wrecking for a time the usefulness of the pure-food law. Pure-food experts of equal standing were to be found on both sides of this question, and some of the decisions under this law were left in doubt until more unanimity of conclusion was reached.

PURE FOOD REFORMS

The United States Industrial Commission of 1901 made a very full and broad study of impure foods and found that a vast array of evils were carried on. The commission found that food abuses were in general of three sorts: (1) adulterations; (2) falsely labeled substitutes; and (3) hurtful chemicals for preserving purposes. Adulterants, it was shown, had been used upon nearly every known food. Certain earths had been mixed with flour, unfit meats had taken the place of fit, water for milk, tallow for butter fat in cheese, chicory for coffee, acids for fruit juices in jellies, and many more such abuses were common. "The evidence," so the committee further reports, "shows that all our peppers, cinnamons, cloves, and spices generally including ginger and mustard are adulterated." ⁴ One food-factory owner claimed that

⁴ United States Industrial Commission Report, 1900, Vol. IX, pp. 1-133.

he "adulterated these last largely with cocoanut shells, and the amount of adulterants put in depended upon the man who ordered it, sometimes as high as 60 per cent was put in."

The false naming of substitutes by which a good but cheap food took the place of a dear one had many examples. Margarine taking the place of butter upon the market is the best-known case, and indeed this stirred up a subject of discord which vexed our lawmakers for many years. But the passing-off of cottonseed oil for olive oil, of cheap fat for butter fat in milk, of acid vinegar for cider vinegar, of glucose for syrup, and of domestic articles of many sorts for imported ones were also instances to the point.

The food preservers, which were commonly found, were the well-known formaldehydes, benzoates of soda, and the salicylic acids. Since the purpose of any food preserver is to stop the germ action which causes decay, the same antiseptic which does this, if chemical in nature, may also stop the needed ferments of the human body during the process of digestion. Most of the so-called chemical checks to germ action have been shown in fact to act in this way. All of them suffer therefore from the same odium which is put upon the use of nicotine, of arsenic, and of other poisons. In addition to these services as germ checks, these chemicals were also widely used as shields for food which already in part had decayed. They hid the fact of this decay and, likewise, the ptomaines and other poisons which may have lurked therein. In view of these abuses, the arguments are strong for the use of heat, cold, or dryness, rather than chemicals, in keeping food from decay.

The commission also made a notable study of the reme-

dies used by our public bodies in fighting these evils. The report made on this topic is in fact a good textbook on the progress which public control had made up to this date in the cure of impure foods. Every state in the union, it was shown, had made some laws for the checking of food abuses, false foods, and harmful food cures. On the other hand, but few or none of these had made wise plans for the administration of these laws. Oversight of this matter was almost evenly divided, so the report says, between state boards of health on the one side and the newly created dairy and food boards on the other. But to none of these were the funds given by which their efforts could be made efficient. Besides, all of these laws were hurt badly by the handicap of novelty, since few or none of them had been in force for more than a decade.

The national government was slow in taking up the cure of impure foods. In fact, there was some doubt as to its powers over a matter so purely local as is the making and sale of food. This matter was held to be a subject for state or city action alone. Specific abuses of food were dealt with, as a result, upon the merits of each case as it arose. Thus, in 1886, the newly devised food, oleo-margarine, became a serious menace to the making and selling of butter. Margarine is made from pure and clean but cheap materials and may be so colored as to pass—except for quality—for a fine grade of butter. It may be sold, of course, for a very low price. The making of margarine was begun too at the very time at which butter was becoming a regular market product. The rivalry between the two foods was as hopeless, therefore, for butter as would be the rivalry of the stage coach against its substitute the steam car. The federal government, when

called upon in 1886, laid a heavy tax, both as a penalty upon the making and also upon the sale of margarine. The delicate and costly butter product was in this way given a chance for the user's favor which it would not otherwise have had.

Dairy products are apparently among foods the especial pets of the lawmakers. This comes about largely on account of their widespread use, the many forms in which they appear, their need of care as the result of easy affinity for dirt, their frailty of make-up, and the vast interests which the dairymen control. In 1897, the cheese form of these products became the victim of a typical abuse. As every one knows, cheese is a union of the two main solids in milk—casein and butter fat—cured and molded in a fixed way. The costly one of these two elements is the butter fat. Now, food-debasers find that some cheaper fat may take the place of this costly one, and a cheese wholly normal in looks will be the result. This product is known as "filled cheese," and is, of course, an object of dislike to the regular cheese-makers. Congress, in its adverse law towards "filled cheese," not only tried to stop the making of this fraud, but also adopted a new and now quite usual penalty for deceits of this kind. This is the well-known publicity scheme which calls upon the dealers in frauds to placard in large letters the nature of their product at all places of sale.

The export meat inspection law of 1890, which has been already told about, put a penalty upon the bringing of foods into this country which were looked upon as bad. The President by this law could suspend at any time the receipt of foods from abroad, which were seen to be a menace to public health. Finally, the last of these special laws for the curing of food frauds is found in the

revenue act for the Spanish-American War. Here the friends of pure food had secured the placing of a tax penalty upon the production of the so-called "mixed flours." A new rule for giving the law effect was made use of also in this statute. Flour of the "mixed" sort, when offered for sale under this plan, must tell the buyer by label the exact make-up of its mixture. The disciples of personal liberty were not yet ready to give up their favorite dogma, namely, that a buyer may buy what he will, bad or otherwise, if not kept in the dark as to the nature of his purchase. On the other hand, the belief that positive action by law is needed to make food pure was also gaining headway. By this law, glucose, corn meal and meal from cheaper grains were banned from use as elements in the make-up of ordinary flour.

One of the gravest checks to the easy picking out of food frauds was the fact that at first there was no exact unity of opinion as to the make-up of pure food. Except with a few sorts of diet, such as milk and sugar, no standards were agreed upon as to what the elements are which should be found in a food. The old adage, "That one man's food is another man's poison," hints at the chances for confusion which grow out of this state of food anarchy. A forward step in curing this evil was taken by the national lawmakers in 1902. At this time they asked the Bureau of Chemistry of the Department of Agriculture to define food purity standards, and to find out the extent to which foods were debased.

The past work of this bureau fully fitted it for the task thus laid upon it. For nearly two decades, this bureau had held a place in the van in the war against food abuses. Its efforts had been expended in baring these frauds and in urging pure-food bills upon Congress as cures. These

efforts brought forth a lore from the bureau, in the form of reports upon the topic of food abuses, which remains yet more complete than can be found elsewhere in our tongue. The setting-up of food standards, thus begun, has been kept up by this bureau until the present time, and the whole list of these tests now forms, when printed, a volume of no small size. Standards, thus set up, have not been given the force of law as have like standards for coins and weights and measures which Congress has laid down from time to time. Despite this, however, in practice they serve a purpose which is scarcely less definite. As told in a circular from the pure-food offices, the use of these tests is urged upon every one who wishes to know the marks of a pure food. Their use is urged especially, so the circular says, upon middlemen, since those "dealers in food who observe these standards need have no fear of prosecution."

Some typical phrasings of food standards, as put forth by the Bureau, are shown as follows:

Sugar is the product chemically known as sucrose (saccharose) chiefly obtained from sugar cane, sugar beets, sorghum, maple, and palm.

Butter is the clean, non-rancid product made by gathering in any manner the fat of fresh or ripened milk or cream into a mass which also contains a small portion of the other milk constituents, with or without salt, and contains not less than eighty-two and five-tenths (82.5) per cent of milk fat. By acts of Congress, approved August 2, 1886, and May 9, 1902, butter may also contain added coloring matter.

Flour is the fine, clean, sound product made by bolting wheat meal and contains not more than thirteen and one-half (13.5) per cent of moisture, nor less than one and twenty-five hundredths (1.25) per cent of nitrogen, not more than one

(1) per cent of ash, and not more than fifty hundredths (0.50) per cent of fiber.

Jelly is the sound, semi-solid gelatinous product made by boiling clean, sound, properly matured and prepared fresh fruit with water, concentrating the expressed and strained juice, to which sugar (sucrose) is added, and conforms in name to the fruit used in its preparation.

Spices are aromatic vegetable substances used for the seasoning of food and, from which no portion of any volatile oil or other flavoring principle has been removed and which are clean, sound, and true to name.

Tea is the leaves and leaf buds of different species of *Thea*, prepared by the usual trade processes of fermenting, drying, and firing; meets the provisions of the act of Congress approved March 2, 1897, and the regulations made in conformity therewith (Treasury Department Circular 16, February 6, 1905); and contains not less than four (4) nor more than seven (7) per cent of ash.

Meat, flesh, is any clean, sound dressed and properly prepared edible part of animals in good health at the time of slaughter and if it bears a name descriptive of its kind, composition, or origin, it corresponds thereto. The term "animals," as herein used, included not only mammals, but fish, fowl, crustaceans, mollusks, and all other animals used for food.

Milk is the fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and ten days after calving, and contains not less than eight and one-half (8.5) per cent of solids not fat, and not less than three and one-quarter (3.25) per cent of milk fat.

THE PURE FOOD LAW

The piecemeal plan of dealing with food evils in this country came to an end in 1906, when the present wide-

reaching pure-food law was enacted by the government. This law applies only to food, of course, which has passed into interstate trade, since the national powers lack control in such matters elsewhere. Little worry need be felt over these limits, however, because the pure-food movement has reached the states also. All the states in fact have since adopted pure-food acts of the same sort as the federal law—even more strict perhaps than the one used as a model.

The law itself is written in terms of denial and puts food adulteration of every sort under the ban. The term "adulteration," indeed, is given an arbitrary meaning by the law so that it covers "coatings, stainings, colorings, and powderings, if used in a manner by which inferiority is concealed" in any article of food. The term is also used to cover the use of "filthy, decomposed or putrid substances," and in the same way many more abuses not commonly thought of as having this title. The usual meaning of the word is also made use of, however, since the law is broken "if any substance has been substituted wholly or in part for the article." And, "if it contains any added poisonous or other added deleterious ingredient which may render such article injurious to health," ⁵ crime has been committed.

Specific taboos are also set forth in the law and the first of these is a ban upon the so-called "fillers" of every sort used in food making. This is a blow at the use of food dilutants, as in the case of using lard for butter, fat in making cheese, chickory for coffee, gelatin for fruit juice in jellies, flour and potato for meat in sausages, glucose for honey, and all the others. Fines and prison terms are put upon those who commit these abuses, and the food

⁵ The Food and Drugs Act, June 30, 1906, Sec. 7.

handler is safe only when he offers a product which follows close upon the standard.

The second of these chief bans is laid upon the use of chemicals for preserving purposes. Hurtful food shields of this sort may be used under this law, only "when put on the outside of food and may be washed off," and "when they do no harm to the food itself." The Secretary of Agriculture may say from time to time what food guards are harmful, and whether their use is thenceforth taboo or not. No other feature of the law has proved so hard to apply as this one, as the many nation-wide disputes over formaldehyde, benzoates, and saccharins so loudly bear witness. The article of food which has been a storm center of the preservative wrangle, and the one which may be looked upon as furnishing a type case, is the common table sauce known as catsup. Whether the chemicals used in this food are a shield for filth in the materials put together, or whether they merely stop decay, are the two questions which arise. These are the questions at least which make out the extreme borders of this dispute, though there are others which lie between. Some preserving stuffs have been put under the ban by the pure-food forces, only to be put back again, later, into full favor by the same powers. It seems to lie beyond denial that many experts would bar all chemical food shields from use at all times.

The third main taboo in the Pure Food Law is that against the wrong branding or wrong labeling of foods put up for sale. In a ban of this sort, notice is taken of the fact that food for exchange purposes tends to pass from the bulk or staple class into that of the specialty or labeled class. Selling programs of a profit-making sort are open to food handlers, if their goods are packaged,

wrapped, canned, bottled, or otherwise inclosed. The name of the kind of food fails to come to mind, we may say in passing, which has not been brought in some degree to the use of one or another of these devices. The buyer's feeling for that which is clean is touched, in fact, by this widespread style, even though at the same time his pocketbook is badly hit by the higher prices which are charged. The Pure Food Law lays down the rule that with all these foods the right name and brand must be plainly given. Besides this, in the cases of foods which contain certain drugs, false colors, and certain other harmful stuffs, all of these must be stated fully upon the label.

As a matter of detail, the Pure Food Law looks upon anything as an offense against the law "if it be an imitation of, or offered for sale under, the distinctive name of another article." Clearly, cottonseed oil may not replace olive oil under the law, nor oleo take the place of butter, nor glucose that of sugar. All of these, it should be said, are really good foods, but their fault lies in the fact that they masquerade under some other name than their own. Exact labels were held, indeed, by the early advocates of the pure-food reform to be the only thing needed to bring the articles of our diet fully up to the standard. "Pour in the light," upon the nature of food, it was claimed, and the buyer may be safely left to guide himself as to his choices.

The Pure Food Law indorses this view, it would seem, to the extent that it asks for truthful labels everywhere and a full list of contents from all doubtful foods. But, on the other hand, experience has taught that, in the main, a direct control of food purity by law is needed in order to be of most benefit. The Pure Food Law is one "armed with teeth," therefore, rather than a statute which merely allows chances for better food practices.

Honesty in the labeling and branding of foods as to quality and kind, however, is only one of the truth demands of this law. A food buyer may be cheated by the false quantity of his purchases fully as much as by the bad quality. The law, therefore, requires that the quantity measures of food, in weight, in number, and in size must also be true as put upon the label. This is a plan, it will be seen at once, for shielding the buyer from the quart bottle which is too small, or the pound package with less than sixteen ounces, or the eleven and a half of anything else which has been sold as a dozen. No less pains are taken by the pure-food forces to get honest labels as to quantity than are taken to get honesty as to substance.

PURE FOOD SUCCESS

In the nature of things, the worth of a law like this will depend fully as much upon its handling as upon the terms of the law itself. The means which are set up for putting the law into effect, in other words, are of great moment. In these respects the results have been fully as good as friends of pure food could have wished. The handling of the plan was put under the care of the Bureau of Chemistry at the national capital. Since this bureau had been the main-spring in the pure-food reform from its start, the placing of the law in the care of such a body was in every way a happy thought. No other duty has so fully absorbed the time of this great agency as has that of handling the Pure Food Law since this task was given it. An excerpt from a recent report of the Bureau of Chemistry tells of the work in this respect during a single year :

Inspection was made of the canning of California sardines, of tuna, and of abalone. Of the California navy-bean crop it was necessary this year to seize only a few cars of excessively wormy beans. The canning of decomposed navy beans has been suppressed very largely. The interstate shipment of oysters from polluted waters has practically ceased, and the practice of adulterating oysters and scallops with water has been checked in the main. Coöperation with the State and municipal officials to control the shipment of bad eggs has been continued, and it is reported that the quality of the eggs reaching the large cities is much improved.

Coöperation to improve the milk supply has also continued, especially at St. Louis and in New England. The coöperation with local authorities begun last year in Texas to prevent the contamination of springs from which water is shipped in interstate commerce was this year extended to Arkansas, Wisconsin, and Missouri, with satisfactory results. A case in which the fairness of the standard of purity for mineral water proposed by the Bureau was attacked, was decided favorably to the Government. Important issues of fact involving the methods of estimating decomposition of tomato products were determined in court.

Action was taken against shipments of worthless frozen oranges and of colored immature oranges and grapefruit, of evaporated apples and canned tomatoes adulterated with water, of mixtures of cider vinegar with distilled acetic acid so manipulated as to simulate genuine cider vinegar, and of glue containing excessive zinc and other metallic impurities sold as edible gelatin.

Much work of an educational nature has been carried on, designed to secure a strict compliance with the requirements of the "Net weight" amendment, and a number of prosecutions for violation of the amendment have been brought with success. Work has been in progress on tea, coffee, cocoa, spices, and similar free-flowing materials to establish suitable tolerances in filling packages of this class of products. In this connection a careful study was made of automatic weighing machines.

With the aid of State food officials, the inspection of low-

protein meal and cake made from delinted cottonseed, reported last year, was reported and extended to the Pacific coast. This year some of the mills placed fans above the separating screens, thus removing a considerable amount of hulls and linty matter. In many cases the labeling of the meal was changed to correspond with its true composition. Action was also taken against linseed meal adulterated with screenings and oats with weed seeds added to increase the weight per bushel.⁶

And in the same report a decade of effort by this bureau is summed up as follows:

To state that more than six thousand cases have been terminated in the courts during the first decade since the enactment of the act, that manufacturers have been cited to hearings more than forty thousand times, that many thousands of factory inspections have been made, that more than seven hundred and fifty thousand shipments of food and drugs, both domestic and imported, have been examined, gives but an imperfect indication of results.⁷

As was said before, the carrying out of the act is made a duty of the Bureau of Chemistry, and for this purpose an army of helpers is needed. When one of these agents of the bureau finds that the law has been broken, the case is at once turned over to the Secretary of Agriculture. The accused food maker or dealer is given a hearing before this official or his deputy, and in the event that violation of the law is proved, the matter is then given to the federal law forces for trial before the courts. In the many thousands of cases tried in this way thus far, fully nine tenths have been decided in favor of the law. The fullest publicity is given to these

⁶ Annual Report Department of Agriculture, 1917, p. 206.

⁷ Annual Report Department of Agriculture, 1917, p. 210.

court findings by the Bureau, as well as to its own views of the law, so that food dealers may be well advised as to their proper conduct.

The sharp limits to the area that a food-policing agency may cover was clearly seen by the framers of the Pure Food Law. That food frauds of all sorts could everywhere be run to ground by the agents of a single bureau is clearly out of reason. The right is given, as a result, to state food bodies to exact from federal law agents the trial of pure-food offenses taking place within their states. This is the same right which is given to the bureau of chemistry for use against interstate lawbreakers, and its gift to state officials also, leaves few loopholes for the escape of the guilty.

The stimulus, in fact, which is given to state and city efforts in cleansing the meat and drink of these municipalities is not the least of the many benefits from the Pure Food Law. Some of the most common foodstuffs, such as milk and garden stuff, are, in fact, rarely found in trade between the states. They are liable to any abuse which may be put upon them therefore so far as this federal law is concerned. City boards of health, however, have bestirred themselves in late years to the sort of civic house-keeping which is needed in order to provide these things clean and fit. We now have, as a result, in many places most ample care given to our bakeries, our candy stores, meat markets, milk depots, city markets, and all other food agencies and the food which comes through them. In all of these many efforts, the federal pure-food forces not only help out but often lead the way.

The reform of our food supply in the way of clean materials and of honest labels discussed in the preceding pages, has come about at a time of marked change toward

its members on the part of organized society. It is a time in which there is a nation-wide stimulus toward better health, better physical culture, better housing, and better care of the human being in general. Pure food is one of the best of these improvements, since it not only saves expense in a costly product in its last stage toward human use, but also fits humankind with the means for fuller and healthier living.

CHAPTER XII

PUBLIC HELP TO A FOOD SUPPLY

A LAND rich in natural gifts such as our people have enjoyed during most of their history gives little care to government with regard to a food supply. Few, indeed, have been the years in which our exports of foodstuffs to other peoples have not been greater than our imports. Ours has always been a surplus country. A nation with a gross plenty, even a century ago, when Jefferson urged "there would be enough for our descendants to the thousandth and thousandth generation," needs little help from public power in order to feed itself. One may safely say that more attention has been given by government to the food supply during the past decade than during our entire previous history. The causes which have made this true are (1) the rise of the costs of living, and (2) the stress of the World War. The effects of the first of these will be taken up in this chapter; the effects of the second in the next.

THE HIGH COST OF LIVING

The twentieth-century rise in the cost of living began at a time of almost even date with the start of the century itself. The "McKinley prosperity" is the name which history gives to this period, since it was a time of intense business stir coming after the Spanish-American War. It was a time, too, marked by a steady rise in price of almost everything which went into the channels of trade.

Strange as it may seem, this rise in prices was at first looked upon as a relief and as a public boon. It was, indeed, a welcome change from the low prices of the "hard-times" period of the middle nineties. As the years of high prices for food, clothing, and shelter, however, gave way to those of still higher prices, public alarm became acute and the high cost of living became a problem of the most serious sort. The fact, too, that it was an international event added no small amount to the general fear and disfavor.

The upward climb in the cost of living is doubtless the result of many causes. Partisans of different economic faiths are apt to give various reasons for the occurrence as they are members of one or another school of thought. To some, it is the tariff which is the cause of the great malady; to others, it is the trusts, or the middlemen, or the fallen value of money, or the labor unions, or the higher plane of living, or any one or another of a half dozen different reasons. Strange to say, each of these causes is given by equally able experts, but no one of them has been fully accepted thus far by all as being the real cause. The cures proposed for the evil are not less in number either than are the number of causes. None of them, however, have had thus far much success in ridding us of the trouble.

Two especial reasons were given, commonly, for the higher costs of foodstuffs which everywhere prevailed, and both of these have been capable of fairly easy proof. The first of these asserted the fact that our free or "homestead" lands were used up; the second was based upon the truth that people were shifting to the cities. The nation was fairly flooded with food during the closing years of the last century. This was due to the ease with which

farms could be obtained in the fertile western prairie plains and to the carrying means offered by the many new railroads. Certain it is, the well-founded farming of eastern states was ruined by rivalry with a situation like this, and it has hardly yet been restored to a profit-making basis. By 1890, the end of our free lands had been reached and further immediate additions to our food supply from this source were not to be looked for.

The cityward shift of people may also be regarded as a real cause for the higher costs of food. Much the larger part of our race is now to be found in towns and cities, and the end of each decade finds this portion larger and still larger. No one may doubt that this growing surplus of food users makes heavy demands upon the less rapidly growing numbers of food growers, even though power machinery has come to the latter's aid. Not all of the causes given for the high cost of living, unluckily, are as self-evident as are these two, although the effects of the rising standard of living as a third cause are also fairly plain. The malady itself, however, may be discussed even though we may not know its causes nor have at hand a successful remedy.

The term "cost of living" when taken up for definition is found to have no meaning except in relation to sacrifice. All thorough studies of the subject have laid equal stress upon the matter of the incomes received, as upon the matter of the outlay paid out. The difference between these two shows how much we have paid for our living. A mere rise in prices then, which is the popular equivalent for higher costs of living, may not mean higher costs at all. Indeed, it seems capable of proof that livings often cost more—require greater sacrifices—when prices are low, as during hard times, than when they are high.

The popular setting forth of this subject, which has filled so many columns of our press, and has taken up so much time in public discussion during the past two decades, has confused the two terms. A table of data showing that most food prices the country over are higher now than formerly has been relied upon, mainly, to prove the fact of higher costs of living. These grim-looking tables—looking not a little like the bill-of-fare display boards standing in front of boarding places—are heralded everywhere as proofs of higher living costs. Such, indeed, would be the case were there anywhere national groups which, without having bettered their incomes, paid these prices. But there are, of course, no such national groups which pay these prices as a group. On the other hand, livings are paid for by private families for private use out of their own means.

The term “cost of living,” therefore, to have any real meaning, must always refer to the outlays of private families, since private families are the units which incur living expenses with us. Common observation shows in fact that some families benefit from the high prices which are paid, and living is less of a cost to them than it was before. Indeed, the profit-earning classes benefit plainly as the result of high prices, since high prices is one of the causes of the high profits. On the other hand, the wage-earning classes benefit less plainly from high prices and more slowly. The result is, therefore, that the two terms, “high cost of living” and “high prices,” do not jump together, as the newspaper and magazine headlines would lead us to suppose.

The family is the usual object of study in finding out the costs of living. This is true because the family is a social unit. It has such relations among its members that

all alike are better or worse off for changes in the scale of living. Sociology teaches, indeed, that the family is an organic thing from many points of view. This support is not needed, however, to show plainly the fact that the family it is which bears the brunt or blessings of a changed scale of living. It is the family budget, therefore, rather than the outlays of separate persons which reflects the rises or declines in cost of living. The very shifting but sturdy body of wants and holdings, which goes by the name of standard of living, must also be taken notice of in any thorough-going study of living costs.

The standard of living, in fact, is found to be the real pace-setter as to our actual costs of living. This is true whether we take the scales of living laid down for mine workers' families by the Bureau of Economic Research or any others for our model. In addition to the force of standards of living, mere fancy, also, has much to do with costs. As another has well said, "actual privations are not needed to create a sense of economic loss; mere thwarted hopes are amply sufficient." The play of these standards of living forces and their psychic effects may be seen on all sides. They are well epitomized, however, in the following outburst from a Cape Cod sea captain who said:

My father wanted fifteen things. He didn't get 'em all. He got ten and worried considerably because he didn't get the other five. Now, I want forty things, and I get thirty, but I worry more about the ten that I cannot get than the old man used to about the five he couldn't get.¹

Costs of living, it may be said here in passing, when looked at in terms of sacrifice, are always heavy for the

¹ Brooks, *The Social Unrest*, p. 96.

race as a whole. Utilities resist us; goods are seldom obtained without an effort; and the minimum of calories daily we must have or perish. To most of us, the weariness of flesh and vexations of spirit from making a living prove fully the severity of the Adamic curse of old. Our language is filled with terms and phrases drawn from the hardships of making a living. Besides the word "labor" with all that it implies, we have "hard times," "famine," "poverty," "pauperism," "submerged tenth," "diminished returns," "conservation of resources," "costs of production," and many more.

The trials of making a living have been among the greatest of the concerns of humankind from the start, and economics has looked upon this feat at all times as the great problem. Making a living has caused most of the great human shifts with which history is filled; it is at the bottom now of most of the colonizing policies on the part of modern nations. Darwin's struggle for existence shows cost of living in its harshest light, its products being the fit survivors. Malthus, in his famous law of population, relied upon living costs as the force which would keep down the overcrowding of humankind.

The rise in prices, then, which is the twentieth-century phase of this great problem, must not be looked upon as the worst form of the cost-of-living evil. Surely, it has made no race migrations, as a famine would have done, nor caused "race suicide," nor even a "struggle for existence." Badly crowded, seventeenth-century England had a higher cost of living than this. Her people made sacrifices in moving to the New World which were far greater than any put upon us by high prices. Belgian people paid a fearful price in order to live, when, upon the breaking out of the Great War, their country was overrun by the

enemy. Tested by trials like these, our costs of living are low indeed. Higher prices of themselves, in fact, are far from being the evil which we are now apt to term them. They are among our most widely trusted signs of "good times—the rising barometer of prosperity. On the other hand, low and falling prices have gone with every "hard-times" period in our whole history.

Greater sacrifices in living costs, too, have not been the rule for every one as the result of higher prices. Many, indeed—at least all of those who have gained by higher prices—have found the costs of living lowered by the rise in prices, rather than made higher. The so-called "profiteers" at any rate have found this to be the case. Doubtless, it is the fact of an uneven rise—not so fast nor so high for labor as for goods—which has bred unrest. Further, the fact of its being a rapid rise has caused much of the great distress. Let us notice, then, certain data with regard to price changes that we may rightly estimate the scope and degree of the high-cost-of-living disorder.

The proofs of the rise in prices in recent years may be found, first, in the general agreement to this end by people everywhere. The late Charles Spahr, in an able treatise on wealth distribution, gives out the belief

that, in matters concerning which they are interested, the common observations of common people are more trustworthy than the statistical investigations of the most unprejudiced experts.²

Certainly, there can be no doubt when proof of this sort is accepted. The common feelings and beliefs of people everywhere is in accord with the fact that there has been a vast rise in prices.

² Charles Spahr, *The Distribution of Wealth*, Preface.

Secondly, the price tables kept by governments and by statistical agencies show fully and in detail the great rise of prices which has taken place in the past two decades. Conclusions drawn from the one of these tables kept by the Federal Bureau of Labor show, also, how one-sided the rise has been, and as a result the distress which has been caused. The table states:

The weighted average of the wholesale food prices in the United States was, in December, 1918, 107 per cent higher than for the year 1913. Retail food prices during this same year (1918) were on the average 68 per cent higher than similar prices for 1913, while weekly wages of union labor averaged but 30 per cent higher in 1913. A week's wage in 1919 bought but 77 per cent as much food as in 1913.³

Data of this official sort have been collected during the two decades of our rising prices to an amount which would fill volumes. Through it all runs a plain thread of agreements as to effects. This is one which shows that the fast and uneven rise in prices—whatever may have been the cause of the rise itself—has brought with it disquiet and evil. These influences of speed and of unevenness have had their share, therefore, in the disorder of the high cost of living.

GOVERNMENT REMEDIES FOR HIGH COSTS

The upward climb of price levels was still far from the peak when the government took a hand in remedying matters. The exhaustion of our natural resources was the first widely accepted reason which seemed to account for the rise in prices. Some gifts of nature, it is true, like

³ United States Bureau of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, March, 1913, pp. 115, 119, 120, 166, 167.

the herds of buffalo and the stores of natural gas, were at an end by this time. The fear was easily stimulated, therefore, that others, notably our forests, would soon be in the same plight. Measures of great energy were taken up, during the last years of the Roosevelt term of office, to economize in the use of this latter great gift. The far-famed "conservation movement," which for several years had all the marks—great annual meetings of partisans, adoption of party planks, etc.—of a popular cause, had its rise in this way. In the end, a few laws, both state and national, for the better handling of the natural gifts of the earth were put into force, and certain resources were saved from private greed. The really great result, however, was the wakened public sense, which was aroused, of a real duty toward these God-given gifts.

Prices still tending to rise, relief for the food buyer was sought during the Taft term of office by a new device. This was no less than the letting of food products from Canadian farms enter duty free into this country. This was the much-talked-of "reciprocity policy," which seemed full of promise to many. The policy failed of adoption, however. The Canadians, indeed, denied the reciprocal free trade to our shop-made articles which was needed in order that the plan should have success.

Another remedy now came into public favor which, it was thought, would add to the output of our farms and thus lower food prices and the cost of living. This was the hitherto unheard-of device of rural credit. This remedy was brought into public view by a special message to Congress from President Taft in which the merits of rural credit as carried on in France were told about. The scheme of rural credits made a plain hit with the public on whom it was urged for adoption. "The use of credit

by the farmer would have the same effect upon his crop output," so the claim went, "that the use of some new fertilizer would." Old mortgages would be exchanged for new ones, and tenants would become the owners of farms. A huge commission made up of publicists from each of the states and headed by federal senators was sent abroad to study rural credit at its birthplace. No other cure for farm ills has had more notice from press and forum during a brief space of time than has been given to this plan. The fine system of Farm Loan Banks, which we now have, was an outgrowth from this great agitation, and we may look with confidence to the future for many more uses of rural credit than any we now know.

Early in the Wilson period of office, the repeal of our high protective tariff took place. Taxes of this sort have always been looked upon as causes of high prices and to many this repeal meant a mortal blow to high costs. Public opinion, however, had shifted by this time to another cause which it was now plain was the real reason for high prices. This was the middleman whose huge numbers and vast greed, the charge went, caused the mischief of high prices. Our middleman problem may be said to have arisen here. Food buyers paid a high price, it was argued; the farmer got a low one; the huge spread between, therefore, must be caused by the middleman's large profits. The middleman, then, was the culprit upon whom the blame should fall for high prices. The remedy for this evil was also clearly seen: it was to lie along the lines of better methods of marketing and of more public control. Governments of all grades, therefore, now set themselves the task of improving market methods and of curbing middlemen.

City and state commissions for the study of market

methods became at once the order of the day on every side. Two of these, the Massachusetts State, and the New York City commissions, made notable reports, the findings of both of which were widely accepted. The report of the latter, indeed, laid the blame for higher prices flatly upon the greed of the middleman, and this class now became, everywhere, the subject of much abuse. Poole's Index to magazine articles, which had listed during its entire history up to 1910 only 10 articles upon the subject of markets, now gave the titles of more than 100 during the next few years. Library bookshelves were devoid of texts upon the subject in 1912; within a few years a literature of many books and bulletins on markets and middlemen had sprung up. Indeed, no less than a dozen standard texts on marketing have been written for college use within the past decade.

STATE AND FEDERAL MARKET BUREAUS

State governments, owing doubtless to the smaller range of cares with which they are concerned, were the first in the field with cures for the new disorder. A new office—that of Market Director—seemed to have most of promise with respect to a remedy for the widespread distress.⁴ Many of the states set up this new office, and its duties in many cases were numerous and difficult. Some of the more notable of these, as found in the laws themselves, may be given as follows:

1. To study the costs of marketing in all its phases.
2. To promote coöperative marketing.

⁴ Doc. United States Bureau of Markets No. 3, Results of a Survey of State Marketing Activities Throughout the United States.

3. To build up and maintain public markets in cities and towns.
4. To furnish market news.

The small scope of state authority covering, as it does, only the space within the borders of state lines soon caused this program to be cut down to more narrow limits. Most states, in fact, are isolated from the main courses of traffic and do not see all its phases. Commerce—besides, disregards state lines and would not be subject to state study or state control such as the program given above calls for. The office of markets in all states, therefore, has given its efforts in the main to the urging of coöperative action among farmers. This has proved to be a fertile field within which to work. The coöperative spirit is everywhere strong among farmers, but much effort has been needed to give it effect. The Farm Bureau movement found doubtless the field thus prepared much to its advantage in reaching the high-water mark of unity among farmers which it has attained.

The marketing furor on the part of the states had seen but a brief life when the federal government entered the field. This it did by setting up a new bureau in the Department of Agriculture known as the Bureau of Markets. The rapid rise in public use and esteem of this new office was most marked. Its success, indeed, was doubtless due in part to the public need and demand for marketing aid at this time, but also due credit must be given to the efficiency of the staff by which it has been handled. This success is reflected slightly in the yearly growth of appropriations with which Congress has financed the new office. In 1913, the amount thus given was only \$50,000! in 1914, \$200,000; in 1915, \$484,050; and in

1920 as much as \$2,911,365 was given.⁵ The personnel of the new office has also grown with equal rapidity. A half dozen men made up its staff in 1913 while as many hundred have been needed since. The output of publications too from this bureau has come now to form a library of no small size.

Both sorts of offices have justified themselves within their proper spheres. The narrow limits, as was said before, within which state bureaus assert themselves have hindered attacks from this quarter upon the big problems of distribution. Local markets present many difficulties, however, and here the state bureaus have found a field ripe for their efforts. The Bureau of Markets' report for 1920 shows the progress of more than thirty lines of marketing studies pursued by this office. It is plain, therefore, that the federal bureau brooked no limits to the scope of its efforts. Let us notice now some of the lines of reforms which either or both of these sorts of bureaus have tried to effect.

Direct marketing has been a steadfast even though a specious panacea for distribution evils from the start. One of the main complaints against our present system is the one that food moves too deviously in going to market and therefore requires too many middlemen. The slogan "too many middlemen" promises indeed to become one of the die-hard sort, though the effects of competition in weeding out useless dealers must be plain to every one. Direct marketing—the transfer, in other words, of the farm products directly from the hands of the grower to the user—would cure all this, its partisans claim. The methods suggested for making this practical—the actual programs

⁵ Annual Reports of the Chief of the Office of Marketing for the years 1915-20.

for going forward, in other words—are varied. They range, in fact, all the way from the larger use of the push-cart to the wider use of the parcels post. All partisans of the direct marketing plan, however, are in harmony as to the merits of the public city market as a scheme for direct marketing.

Public markets were advocated by both sorts of marketing offices, and a large growth in the number of these agencies took place. The home market is, indeed, an economic ideal for farmers which has held a place for more than a century. Doubtless there is something of the traditional in this, since cities were at one time almost wholly provisioned by the neighboring farmers. Even now, however, it is claimed that city markets would tend to keep up the balance, so often lost, between the amounts of things grown by the farmer and the amounts wanted by the city consumer. In this way harmful gluts and shortages would be prevented. The consumer further would be saved the costs of railroad charges for carrying food long distances from farm to city if direct selling were set up. He would also have the advantages of fresh produce for his table. These are a few of the many reasons offered in support of the public markets for towns and cities. Many things were learned about this self-help or home-made style of food-sharing through the studies of these offices. There is no doubt, also, that a great impulse was given to the cutting out of waste in food distribution generally through these studies. The present-day prevalence of high railroad rates is giving a special impetus to the use of local markets.

The grading of foodstuffs to standards was another marketing device which soon came under the notice of both the state and federal offices. Cotton, wheat, milk

and butter are among the more notable farm products which have had official grades given them by law through the activities of these offices. Foodstuffs for commerce, like coins, should have exact marks meaning the same to both buyer and seller, and these can be had only through some scheme of grading or grouping. The related benefits of labels and of advertising, too, are only possible when grades have been fixed upon.

Luckily, in the case of foodstuffs, nature has already done the rough work of making classes or grades of food bearers which need only a certain finish from man in order to be complete. This comes about through the well-known scheme of kinds, genera, specie, and varieties by which organic things are naturally classified. Even as foods are found at nature's hands, therefore, the user need not be fooled by taking pork for beef, rye for wheat, nor a "Ben Davis" apple for a "Baldwin." The breeders' skill, in fact, has made the qualities in some foods so fixed and well known that the sort of food itself is not better known than is its grade. The selective work urged by premium-giving fairs, by shows, by many judging contests and by special farm clubs has also added to the bent which nature gave things. Types, breeds, and classes are in this way brought out. The markets, too, have sorted out brands and blends and grades of animal and vegetable foodstuffs, trade-marked or otherwise, into great numbers. The buyer now, as a result, has a perfect medley of these things from which to make his choice.

Grading of this latter sort is, of course, the kind which is of special note here. The buying and selling of food on a large scale is out of the question, unless articles may be known by description. The fluid-milk food shows this fully. Until the modern scheme of grading came into

use, there was no real milk trade or, at least, a very slight one. Once the way had been shown by which to grade milk and the legal standards set up, the fluid could then be bought in huge amounts on contract and for weeks in advance. A milk trade was in this way brought about. Both the federal and the state marketing offices have had much success in creating an interest in grades, and in securing their adoption for many foods. In the regions set aside to the trade in these foods, these grades will become without doubt as well known and exact as are the money terms of dimes, dollars, and cents.

Food measures and containers, though vastly easier to grade than the food itself, have been brought to a standard only with great effort. Some laws there have always been which decreed the size of a bushel, or of a gallon, or of certain other common measures. These were enforced in the different states with much care and firmness. But the containers of most foods as respects size or shape have shown until lately only the caprice or whim of the makers and users. Marketing offices of both the federal and state sorts have worked hard in recent years trying to bring these also to standard types and with some success. The promise is bright, therefore, that we may some time know exactly how much makes up a box of berries, a dozen of eggs, or a basket of peaches.

Honest labeling and advertising, as may readily be seen, gives little bother once the question of grades has been settled. The thing to be sold must first have its identity settled so that a description is possible. Advertising and selling by name, if the thing have sound qualities, are then both made possible. "A good name is rather to be chosen than great riches" is true in both the moral and the marketing worlds. Getting a good name on the market and

growing for a special market are in fact two sources of profit which have been opened up only lately to the farmer. Both of these are now striven for by farmers either singly or by localities. Neither a reputation nor a market can be had, it is plain, without some sort of grading, labeling and publicity. No field of service for market officials gives better results than this one of finding standards for salable things, in promoting these standards and in helping all practices which they make possible.

The distribution of market news to farmers and farm agencies is another service which has made demands upon these bureaus with notable success. Production for the market has indeed brought many important changes in this ancient pursuit of farming. Not the least of these is the need for timely and exact news with regard to prices and markets. These, the farmer must have in order to guide his farm program in the correct way. Few other phases of commercial farming are harder to deal with in fact than is that of ascertaining the "right price." In recent years, we have had much outcry from farmers for a so-called computed price. The devotees to a flat price fixed by law are perhaps not numerous—the experience with war-time law-made wheat prices not having been wholly enjoyed by farmers. On the other hand, the champions of the so-called "compensatory" or "cost plus a profit" price are very outspoken in their demands, and not a few converts have been made to their unusual price doctrines.

The various middleman agencies at which the prices of farm products are set at the present time allow the farmer no voice in effecting this feat. This is true whether the agencies are boards of trade, auctions, or city markets at which the prices are made. In other words, these concerns have no special care with regard to setting prices, and

they arise here merely as a by-product from the regular business. Even less care is taken, perhaps, in respect to the way in which these prices are quoted for the use of the farmer. Quotations of this sort are, in fact, only news, with no more care taken on the part of the press to verify its worth than is given to any other news. One may get daily from official sources the state of the weather in all parts of the country, and this news is of vast benefit to everybody. Until lately, however, the farmer had no true advice from official sources with regard to prices. The news of the selling prices of products in different markets, one easily sees, however, is of fully equal worth to him, as is the news of the weather changes.

The helpful aid in this field which is given by the federal market bureau may be described by an excerpt from the 1917 report from this office, which is as follows: "Probably the most directly useful and concrete work of the Bureau of Markets is its market news service on various commodities." The details of the aid upon which such a claim is based are worthy of our notice, and these are set forth as given below by facts gathered from the annual reports of this Bureau to the departmental chief. An exclusive wire service by which all the stations of the Bureau were joined together was an early acquisition. By this means the Bureau is kept in constant touch with all the leading markets of the country all the time. Market news reports to the number of 3,000,000 or more were sent out to more than 52,000 persons during the first year of this service. Still further, more than 10,000 agents reported food movements on different markets to the central Bureau during this year. More lately the radiograph has been brought into use by this Bureau and in many areas farmers

may now get daily news of the markets from this new service.⁶

The acme of the market service news is reached by the Bureau, however, in the weekly issue of the "Weather, Crops, and Markets" sheet. This large 32-page journal tries to tell the weekly trade activities of every sort of notable farm or food product which enters into commerce. It shows the places of shipment and of receipt of these, and also the current prices which are obtained for each kind. It is safe to say that no more reliable source of price and market news is to be found anywhere than is found in the "Weather, Crops, and Markets" print. The radio service as given out by the Bureau promises to effect the future conquest of the market and price news field, however. By this great device farmers, through providing themselves with a receiving appliance, may get each day instant news of markets and prices at their own homes. Surely news of this sort, when given out under the official stamp, leaves little more to be asked for in respect to information.

Coöperative marketing exchanges have had the help of both state and federal bureaus to the fullest degree. Coöperation of all sorts among farmers indeed has had the full support of public authority in late years. This has been especially true of the coöperative selling agencies known as exchanges. As was said before, state marketing offices have given their time almost wholly to the promotion of coöperative marketing and the Federal Bureau has made the farmers' unions one of its chief interests. So much has been said about the nature and growth of these concerns on previous pages, however, that only this brief

⁶ Bulletin Report of the Bureau of Markets, 1917, p. 27.

mention of a chief source of support needs to be given here.

A general survey of the results from this first attempt at public aid in food marketing shows that nothing more than a simple reform of details has taken place. No vital change in any part of the vast modern system of marketing has been brought about. Nothing of this sort, in fact, was tried anywhere. Indeed, it is possible that the best service given by either the state or the federal offices has been quite different from this. Their chief service has been perhaps the setting up of rallying points or clearing houses of influence and information from which marketing abuses may be dealt with when they become unbearable.

GENERAL SERVICES OF GOVERNMENT TO THE FOOD SUPPLY

Help to the food supply has been the object in a broad sense of all the efforts of public authority in behalf of farming from the first. The formal tie between these two appears at once when we recall that all care over food matters is made the work of our bureaus of agriculture whether state or federal. Thus the pure food laws, the food supply data, and the food studies are generally given over to the offices of this sort. Indeed, the welfare of the farmer as the "tender of the sluiceways" of our food supply has always been a chief concern with government.

The various states, each as its local bent tended, have all tried to promote farming in some way. This they have done through such efforts as have been happily summed up in the excerpt given below:

Collecting, publishing and distributing crop statistics; holding state and district fairs; conducting farmers' institutes; enforcing laws relating to highways, forests, live stock, fertilizers, cattle and human food, dairy products and the like; the control of insect pests, and fungous diseases in orchards, nurseries, and vineyards; enforcing quarantine laws against rabies and other animal diseases; conducting test farms; distributing seeds, and plants and preparing and publishing annual reports, agricultural journals and bulletins.⁷

The federal government has been more slow in coming to the help of farming. A few tariff laws, in our early history, gave help to certain special lines of this pursuit. A nominal help was given also through the free distribution of seeds. Universal help for all farmers, however, was offered from Washington only when the Agricultural College Law was passed in 1862. No one may doubt the benefits from teaching the use of modern science to farming which has come from the agencies given by this law. It needs no especial vision either to see that city dwellers have had a full share of this benefit. The constant aim of science, applied to farming, has been "to make two blades of grass grow where only one grew before," and the greater output of food thus gained has made the supply greater for city people.

The system of agricultural experiment stations set up in 1891 is a more direct effort even towards a bigger food output than was the scheme of the colleges. A partial list of the projects looked after by these stations shows plainly the benefits to a food supply which such efforts secure. Quoting again from the text made use of above, we have such a list as the one which follows:

The testing of the relative value for all purposes of all breeds of live stock; testing the merits of hardiness and

⁷ Bailey's *Cyclopedia of Agriculture*, Vol. IV, p. 482.

adaptability of new and untried varieties of wheat and other cereals and of all field crops, grasses and forage plants, fruits, vegetables, plants, and trees; analyzing fertilizers, and testing them for different crops; studying the composition and digestibility of foods for domestic animals; study of the diseases to which cultivated plants and trees are subject and also into the ravages of destructive insects and their remedies; study of the diseases to which domestic animals are subject; finding out the vitality and purity of farm seeds and conducting any other experiments bearing upon the farm industry.⁸

RURAL COLLEGE EXTENSION SERVICE

The fully rounded boon of farm aid which we have now partly told about was made complete in 1913 when the law for a rural college extension service under federal care was adopted. This service had for its scope the teaching of farmers in a concrete way the lessons which the college and stations, mentioned above, had developed. It tried to put a faculty of teachers at the disposal of farmers everywhere in their homes. In this way, adult farmers were to have an equal chance for learning with the one which their children enjoyed in the schools. There remains now to be said about this effort that it has had an equal success with that of the other members of the trinity of public help.

The authors of this vast scheme of extra-campus education soon saw, however, that their plan was incomplete if it stopped with merely providing a faculty of teachers. It was seen that added means to those of the teaching staffs would be needed if the farm message was to be carried to needy farmers in all places. Centers for receiving this instruction were, therefore, planned on a country-wide scale from which light should radiate. These centers or

⁸ Bailey's *Cyclopedia of Agriculture*, Vol. IV, p. 428.

clubs, as they are called, came to include farmers in all lines of this pursuit grouped on some agreeable basis, and were the natural forerunners of the now well known Farm Bureaus. Even the children were drawn into these clubs, since a junior side of extension work was set up and has flourished. "Club Work," as this activity is called, has come to be a fixed feature of the service and has done much to enrich the social life of the open country.

A further notable feature of this farm-help program, either with regard to the colleges, the stations or the extension service, has been the help that the states were called upon to give in their support. This was in the interest of local and, therefore, of careful handling. As a matter of fact, no state failed to take part in supporting and, therefore, in having the three-fold agency of farm help told of above. For the colleges and stations, each state must provide the board of directors, while in the extension service the state must give the equal of that which is given by the central powers of money support.

No tale of the public help to a food supply would be complete lastly without an account of the Department of Agriculture. This huge agency is kept up at the national capital, and has been termed a great university of agriculture. The work of this Department for a food supply has already been shown in part when the narrative of its efforts toward pure food and better marketing was given. Farming was one of the latest of our public interests to get a cabinet place, but no other of these executive offices fills a bigger place in the public eye at present than this one having to do with food and farms. Besides caring for the two great interests just spoken of, its further service is shown through having such bureau titles as those which follow: animal husbandry, plant industry,

forest service, chemistry, weather, soils, entomology, biological survey, statistics, states relations, and public roads.

The specific aid given to the growing of foodstuffs by these various divisions would require for its description a volume of itself. It may be hinted at, however, by a detailed presentation of the work done by one of them, namely, that of plant industry, which is as follows :

It takes in the departments of botany, vegetable pathology, agronomy and horticulture. Its work now includes a great variety of scientific investigations and practical experiments and demonstrations on plant life in its relations to agriculture. It maintains an experiment farm at Arlington, Virginia, near Washington, and demonstration farms and experiment stations in different parts of the country. It conducts agricultural explorations in foreign countries to secure plants and seeds for introduction into the United States. It has charge of the purchase and distribution of seeds allotted to Congressmen.⁹

A single instance of the style of help given to our food supply by this great Department is found in the work of the Foreign Plant and Seed Introduction Office of the bureau just told about. By the efforts of this office the durum wheat has been brought to the great dry plains region of the west, where it thrives as well as in its native Russia. The now well-known alfalfa forage plant was brought from Turkistan and Arabia, the fig from Smyrna, the date from Africa, and the reindeer from northern Europe. Sporadic migrations of food plants and animals—the way by which most of our food bearers came—one sees at once have now been supplanted by the orderly efforts of this office.

The food-testing and food-analysis work of the govern-

⁹ Bailey's *Cyclopedia of Agriculture*, Vol. IV, p. 479.

ment which is so widely known for its great worth is all done by a division of this Department. Besides this, these official food experts have also given much useful advice upon food dishes and family budgets. The teaching of the bureaus in general is carried on by the issuing of bulletins, circulars, and other forms of reading matter in enormous amounts. It also sends out, however, speakers and show materials in all lines of farm effort whenever these will be useful. The Department is well entitled to the name of farm university. A recent survey of its field of activity lists more than fifty separate lines of farm interests which it studies, publishes, and teaches upon.¹⁰ It has been well said of this Department that "it operates on such a large base that its activities are now among the most important and far-reaching functions of modern government, setting an example to the governments of the old world."¹¹

¹⁰ "Government Service for Agriculture," A. C. True, Bailey's *Cyclopedia of Agriculture*, Vol. IV, p. 478.

¹¹ Bailey's *Cyclopedia of Agriculture*, Vol. IV, p. 478.

CHAPTER XIII

FOOD DISTRIBUTION BY GOVERNMENT

Food distribution by government has been a favorite dream from the start with those who have sought food-marketing reform of the radical sort. The Great War gave the chance to try out such a plan in this country for a period of more than a year and a half. Food handling during this time was solely in the hands of public authority. We have now on record the plans and the methods, the merits and the faults, of such an effort so that we may weigh and judge them with respect to the lessons to be obtained. After a few words given to the setting in which this great feat was tried out, the rest of our study will be given up to the main facts brought forth by such control of foods, and also to their teachings.

WAR FOOD CRISIS

The warring armies in the great struggle soon brought the food supply of the world to a point within computing distance of the final limits. Food, indeed, to all of the enemy peoples quickly became as big a factor of success as was the size of their armies or the supply of their war weapons. Under terms of this sort, no fighting nation failed upon its entry into the strife to adopt formal plans for feeding its people. Among the larger nations, these plans took the course of setting up official food managers or "dictators," who should control the entire

food supply of the people. Fitting laws to give the powers needed for success would then complete the system.

Our own country joined the War at a time when the world's food fund was at a low ebb. The harvest of 1916 for every crop had been below normal, owing mainly to weather causes. In addition, the enemy's renewal of submarine warfare at this time had for its avowed purpose the ruin of such parts of this dwarfed output as should try the overseas trip. This was in line with her great plan for starving our English ally through cutting off her food supply. Much as foodstuffs had already risen in price in this country as a result of the War, our own entry into the fray made these prices jump to unheard-of heights. Flour, for example, in the spring and summer months of 1917 sold for \$18 per barrel, wheat for \$3.48 per bushel, potatoes for \$4 per bushel, beans for \$13 per bushel, etc.

The duty of food growing and saving was preached in the seedtime months of this year, with the same fervor and widespread effort as was the duty of joining the ranks. President Wilson, in a special message upon war needs, April 16, 1917, shows the popular feeling, when he speaks as follows:

Our own people and a large proportion of the peoples of Europe must rely upon the harvests of America. Upon the farmers of this country, therefore, in large measure rests the fate of the nations.¹

The slogan that "he who grows food adds to the world's supply, while he who buys food merely takes therefrom" was taken to heart by all. City people vied with country people in helping the food supply by having gardens on

¹ Special Message to Congress, April 16, 1917.

vacant lots and in front yards. As bad luck would have it, the 1917 season proved also to be a poor one, and long before harvest time the truth of the early forecast of only a two thirds of a crop became evident. In spite of all the extra efforts which had been put forth, the harvest output of this year was far below normal. Under evils of this sort, the need of some uniform plan for the handling of our food supply could not be overlooked, and in August the setting up of a public food control took place by act of Congress.

THE SPIRIT OF THE HOOVER FOOD CONTROL

The food control law in its twenty-seven sections gave the President the entire control of the food supply of the country, after it left the hands of the farmer. It further urged, in detail, that there must be no food loss by hoarding, by wasting, nor by use for gambling purposes. Mr. Hoover, whom the President at once summoned to handle the law, based his system of control upon the freely offered help of the public in making the most effective possible use of its food. He was to rely more upon appeals and advice than upon laws and force. Appeals, in fact, were made daily through the pulpit, the press, the mails, and the public platform, for a helping hand on the part of the nation in the use and saving of our food. Thousands of people in all walks of life, in the various counties, cities, and states were brought forth thereby to do voluntary work in some phase of handling food. No big restraint upon the use of food was made, until the need for the check had been fully told and made clear to the public. Vast numbers of lesson cards, pamphlets, and bulletins and hosts of speakers were sent over the land further to advise and inform the public.

No one of the many appeals or "drives" for public help during the War, we may say in passing, had more success than this one. The feelings of the people, indeed, were stirred to a crusading pitch in their service of the food supply. A warmth of spirit caused by the War, made people more keen, beyond doubt, to such calls than would otherwise have been the case. But the "drive" itself, put on by Mr. Hoover and his aides, yields in place to no other during the War in respect to scope and skill. Propaganda was at its best in the hands of Mr. Hoover and his aides.

Aside from the real work of the food office, the great merits of the cause for which food control was set up must be given credit for making its handling a success. As commonly stated at the time of the War, these ends were: (1) the sending of an adequate supply of food to our armies and allies across the seas: (2) provision for home use; and (3) fair prices. The first of these ends, by touching in a striking way the popular fancy, gave most of the push, which was needed for the success of the undertaking. It gave the drum-and-trumpet effects which a popular activity must have and is very much worthy of notice. On the other hand, this overseas effort was short-lived, it was a phase for the moment only, and has passed. The most of our study, therefore, will be given to the problems of the domestic food supply and of fair prices; the second and third, respectively, of the ends which were tried for by the food board.

Here, we must say at once, the essentials of a good plan of food handling were present in the program laid down by the food control board. Nothing had been left out, even though public feeling was so much relied upon for stimulus. The food-control system with regard

to prices and the domestic supply, then, may be said to have had three branches: (1) the voluntary agreements with the trades; (2) the trade-licensing system; and (3) the fixing of basal prices. Each of these will now be taken up and described.

TRADE AGREEMENTS

Among the many changes in our ways of doing things which grew out of the War, none are more striking than the full adoption which was made of the collective fashion of carrying on business. The rival forces to this fashion, of private enterprise and competition, suffered indeed for the moment a partial eclipse. The two forces in question, which for several decades had been especially backed up by antitrust and antipooling laws as the last word in business control, were now harshly set aside. Coöperation was the order of the day on all sides. There must be a united front against the enemy in every activity of life in order to win the War. Truly, the mental change which was called for on the part of those who had grown up under the old style of business control was little short of violent.

The railroads offer a good case in hand with which to illustrate this change. These, when "taken over" under the law, were joined together in a way and to a degree which far outran the dreams of the most ardent rail monopolists of former times. Traffic pools, rate agreements, passenger station, freight depot and outfit mergers appeared on every side. Combines of these sorts, strange to say, were now far from being the odious menaces they were held to be in former years. Indeed, they were now looked upon as being the very keystones of good policy. A like change took place in the public mind with

respect to the proper methods for handling foods. Here everything must be concentrated and organization and programs could not be dispensed with. The good results from this change in policy were notable here, too, in an equal degree with those which developed in the case of the public carriers.

The food trades were seen at once by the Hoover control to be the real cornerstones for a food-handling policy. The first steps taken, therefore, by the control chief, in picking up the new office, was to call meetings of the chief traders in the different lines. Councils to the number of several hundreds were held in this way. This plan was for the purpose of finding out how the food of each trade should be dealt with in order to give the best results.

Mr. Hoover tells of this part of his program as follows in the first report of the food board.

It was sought to secure the best expert knowledge by calling to Washington representatives of each business concerned for consultation. Appeals were made to them on the grounds of patriotism to effect as far as possible the objects of the Food Administration and to obtain from them their expert knowledge and suggestions as to the best method of eliminating speculation, excessive profits and other unfair practices and to secure more economic distribution. This appeal to the business men of the country has met with an enthusiastic response. It has obtained for the Food Administration the coöperation of the great majority of food manufacturers and dealers, without which it would be practically impossible to secure the immediate and constructive action required.²

The characteristic foods of each of the food trades were left in this way to the general handling of the mem-

² House Document, Vol. XCVI, 65th Congress, 2d Sess., p. 10.

bers of that trade. The needed skill and vision for taking care of the supply could be found nowhere else, in fact, than among the members of the trade itself. Not a few of the very ablest of these in each trade offered their services, free of charge, to look after and direct their associates. They also pledged themselves, in addition, to entire self-denial in private business during the period of this service. In this way, the men who knew the most about the business in question and had the least motive for acting in a selfish way, were given the places of power. It is small wonder, then, that an agency with such a personnel and such a spirit should have had success.

The trade agreements which were entered into between the leaders of the various trades and the food chief, were of the most wide-reaching sort. The amount of food which different dealers could handle, the grades that he should use, the price he should pay and charge, and the dealers with whom he should trade, were all matters of counsel and contract. Flour mills for example, so their trade pledges ran, could have only a certain quantity of grain each season. They must make, in addition, an agreed-upon kind of product and must buy and sell at an agreed-upon price. Practices of this sort on the part of public officials must have carried a strange sense of novelty to many scores of men in business. These were the ones who had striven in the past for business unity in some one of its several shapes—in brief, the trust and combine makers. They were the ones, indeed, who had felt the fury of the Sherman anti-trust laws as applied by the courts during the two or three previous decades.

THE LICENSING SYSTEM

Food tradesmen for the first time were given officially the status of professional men during the brief period of the Hoover régime. The census in its decennial lists of pursuits has always grouped these men as being of the professions, though they are not commonly so regarded by the public. Marketing studies, too, have usually shown food dealers to be salesmen of services fully as much as of goods, and hence, by right, members of the service-selling groups. On the other hand, the usual legal mark of membership in these professional groups—the license—has been denied to the dealers in foods. This was now to be remedied.

Licenses have been a common method in America for giving special rights to certain ones who offer services for sale. They exact further from these privileged ones a high grade of fitness and of public service. Lawyers, doctors, teachers, barbers, dentists, and many others have been held by licenses to such standards as the public has laid down. On the other hand, craftsmen having these writs have been freed from the rivalry of those who are untrained or unworthy and to whom licenses have been denied. A trade, as the plan has worked out, having been made by law a licensed trade, at once the members of this trade find themselves regarded as semiagents of the government. A license, thenceforth, they must have or forfeit their rights to offer services for public hire. The scheme has few equals as a scheme for cutting out by self-action those who are no longer wanted in a given pursuit.

The licensing system for the food trades was a scheme brought up by the dealers themselves in their many meet-

ings with the food head. All food dealers in the end except the small ones of the retail sort were forced to take out licenses—a number much in excess of a million and a quarter. Licenses, by their nature, must be shown in a public way in order that no one may doubt the rights of the holder; lack of this display implies the lack of a license and therefore the total lack of the right to carry on business. Few laws, therefore, are easier to enforce than those having to do with licenses, since these latter operate in an almost automatic manner. This is indeed the great merit of the plan.

The food board used its license scheme in many ways, since there was no offense that a dealer might give for which his license was not liable. In the order in which they came up, however, the list of reforms which the food board was able to enforce upon its licensees were as follows: (1) the moving of food in a direct line from grower to user; (2) the cutting out of speculation in foodstuffs through hoarding and “future” trading; (3) the stopping of food wastage; (4) the control of the small retailer; and (5) the setting of prices upon all foodstuffs by means of the profit margins. Each of these will now be taken up and told about.

The very essence of a food control requires that authority over food movements from farm to consumer shall be in the hands of a central body. This power was made use of by the food board chiefly through the following rules: (1) that all licensees must report at stated times the details of their food handling to the food board; (2) that licensees may only hold food for the lengths of time fixed upon by this board. Foodstuffs thus handled could be easily traced by the reports named above from one middleman class to another and their progress toward

the final user kept track of. All food was in this way within the potential view of the food board at all times. No buyer could complain thenceforth that food had been juggled about from one set of middlemen to another, that costs had been piled up and prices made higher. Under these two rules food simply must move, and move in the shortest way from the farm to the market.

The evils of food speculation which the license plan was used to combat were of the gravest sort. These may well be stated in the words of Mr. Hoover himself, as given to the senate committee on agriculture, June, 1917:

We are confronted daily and hourly with evidence of a large amount of rank speculation at every link of the distributing chain by persons not engaged in actual commerce or distribution. Thousands of men in this country who never owned a commodity in their life have bought canned goods, flour, wheat, and every food commodity to speculate for the rise. Altogether, we face the situation of the country producing a surplus of foodstuffs and paying the highest price known to its history.³

The ills of this sort were stopped by the rule "that no licensee shall sell for future delivery" except for periods set by the board. Naturally, a rule of this sort penalized enterprise and foresight on the part of dealers everywhere, since buying for future use of all sorts was now subject to the ban of the board. On the other hand, food speculation in war time was so great a curse both materially and morally as to fully warrant a rule of such a drastic nature.

Food wasting is an evil of no small size at all times, but was clearly an ill not to be endured under the stress

³ Hoover, Report to Senate, Agricultural Commission, June 19, 1917, p. 16.

of war. It is claimed by Professor A. M. Adams in his book on *Marketing Perishable Farm Products*, "that between thirty and forty per cent of the perishables which are raised on the farms are never consumed at all, but are a complete social loss."⁴

No small amount of this wastage—a large part, in fact, of that which occurs in food marketing—is of a single sort. It is of that sort known by the name of "rejections." By this is meant the fact that middleman dealers of one class often reject the food shipped them by members of another on trivial pretenses. Food of this sort is allowed to spoil and becomes an entire waste. This sort of thing was stopped through the rule of the food board that licensees must accept, in general, all goods sent them. Inspection, at both ends of a food trip, was set up by the board in order that disputes might not arise as to the condition of foods en route.

The curb of the retailer, which the food board brought about, shows the license plan at its best. Congress, through an excess of caution, had freed nearly all of this class from the workings of the food-control law. No direct curb over these dealers, therefore, had been given the food board. On the other hand, plainly, the large numbers of this group made their powers for evil very great. Besides this, their direct contact with the final food user, who is the least expert of buyers, made the retail dealer a greater menace in boosting prices than any other middleman. In addition, retailers lacked the organization for self-control which the other tradesmen had.

The food board was not blind to this lack in its power. From the start, retail dealers were called together for meetings and trade compacts, the same as wholesale deal-

⁴Adams, *Marketing Perishable Farm Products*.

ers were, but they were held to fewer checks. These were, notably, however, the binding of the whole group, (1) to the practice of joint delivery of goods; (2) to sales on the "cash and carry" plan; (3) to the selling of substitutes for flour and meat; (4) to bulk sales instead of by packages; and (5) to set margins of profit.

Sternier methods than those of free-will pledges were adopted in the end, however, in order to secure the above-named reforms. The food board needed a stronger grip upon the retail merchant than was given it by law, and the wholesaler's fear of losing his license became the means of getting this. The big merchant, in brief, was denied the right to sell goods to any retailer who was guilty of acts of which the food board did not approve. Simple notice to wholesalers from the food board that trade with certain retailers was taboo, and these latter dealers were fully removed from business. Most often, the mere threat of this taboo penalty, when made against a retail dealer, caused a hasty change of front on the part of this trader so as to fall in line with the food officials. Roundabout as this method was in handling the retail merchant, it proved as effective in the end as though the power had been given directly to license the small dealer.

The most drastic use of the license system was its employment as the means of setting retail prices. Here it was used on nearly all foods of every kind which entered into trade. This move on the part of the food board reached its broadest limits, as applied to retailers, a few weeks only before the armistice was signed—a period long enough, however, to show its good features. On the other hand, other classes of middlemen had been handled in this way as to prices for nearly a year. The license as a means for setting prices was no experiment, therefore, when applied

to retailers. Price-setting of this sort on all foods gave the so-called "margin-of-profit" prices, and makes no doubt the most novel feat achieved by the food board during its whole history. A rather full account of margin-of-profit prices as put on retailers is, therefore, worthy of our attention.

The price-setting plans of the food board grew slowly, so the records show, since there were grave doubts as to the lawful power of this body to set prices upon all foods. On the other hand, the commands of the food law were plain that the food board should keep the profits of middlemen from being higher than was "reasonable." Some limits there must be to prices, therefore, if profits were to be kept "reasonable," and to the work of limiting these prices the board set itself. The task of keeping food prices in hand was, indeed, a huge one for the food board. When one thinks of the millions of food exchanges which take place daily in a country the size of ours, and each at a price, the attempt to keep all of these prices in line seems far from easy. That it was done so well by the food board is all the more striking too because it is a feat which had been listed until this time as among the things not attainable.

The pricing of food products in normal times is a matter of no very great bother. Food-making trades adjust their outputs from time to time in harmony with the expected quantity the markets will take and the prices which they will pay. Prices, in fact, are thus left to be set by certain well-known forces, such as the law of supply and demand, production costs, and scales of living. But the turmoil of war took away these natural guides and forces by which a price is made in times of peace. Hosts of people, for example, were drafted into war work of all

sorts, thus cutting down the needed supply of labor. Great pursuits—that of the railroad as an instance—ceased to act in a normal way through public operation. Special war foods, like wheat, fats, beef, and sugar, were stressed to the neglect of others, and even the per capita use of food grew apace among the people; this last through the heavy personal fatigue which war labor causes as set over against peace labor. Add to all this, an actual lack of food owing to poor crops; a probable future lack brought on by the hazards of war; and the chances one sees for the food profiteer to make robber prices become boundless.⁵

The term “reasonable profits,” through which the board got its right to set the retail prices of all foods, was not easily defined. At first, indeed, the pre-war rate of profits was hit upon as the “reasonable” one which was called for by the law. Few choices could have been less happy, as the event turned out, nor more difficult to apply. It was found, in fact, that rates of profits, so far as guidance purposes are concerned, are largely fictions or myths. They are hard to find and vary from dealer to dealer. This pre-war profits rule, therefore, was speedily given up.

A general rule of profits must be had, however, if profits were to be kept down and no favoritism shown, and the board cast about for new light. After many trade councils the plan of arbitrary or specific profits was agreed upon and was put into effect at once. “Profit margins,” so called, were, in brief then, maximum charges made by the dealer over and above the gross costs of his goods; higher prices he must not charge under the penalty of

⁵ A single example, which the board reports, shows the scope of these chances. “The putting on of the regular profit margins upon canned goods at one time,” so the board tells, “made a saving of \$7,000,000 over what these canned goods had already been sold for to the trade.” Food Administration Report, 1919, p. 26.

losing his license. It was simply the well-known cost-plus scheme applied to middlemen. In the end, this system of profit margins was applied to nearly every dealer and to nearly every sort of foodstuff. It was termed the margin-of-profit method of keeping down prices and it had at least the merit of being successful.

Capable as the profit-margin scheme was it soon showed the need of safeguards in order to give the best results. Naturally, the way to apply these profit margins was by the method of addition. Each dealer added his profit-margin to the gross costs of the food bought by him, the dealer of the next class to whom he sold doing likewise, and so on. Thus, the charges which the final buyer paid were "pyramided." Food, which had been kept moving in the shortest line between grower and user, received in this way a fair price. If the margins were not too high any buyer should be willing to pay this price. No one, indeed, should expect to get things at less than cost.

Profit margins could become successful only in this way. Over and over again, the food board urges that these margins "are not to be added to the replacement values of goods but to their cost values." The cutting out in this way of speculative profits—profits made by taking "the rise" which results from scarcity—was plainly attained. This result proved to be a long step forward toward a marketing plan which would be based on service. The rule of making costs the basis to which margins should be added was the only rule indeed which was possible, if final prices were to be held down to an even level and speculation suppressed.

The great price by-product—production guidance—was, of course, lost through this machinelike way of making prices. Farmers were no longer advised by a period

of high prices that a bigger output of this or that food would be needed next year. This was true because all foods together, whether plenty or scarce, were priced alike, under the rule, by adding a profit margin to their costs. The so-called functional services of prices, usually so helpful, were cut out, therefore, when prices are set in this routine way.

The absence of this usual price guidance to farmers, on the other hand, was little felt during the period of the food control. War times made all things scarce, and prices were ever upward; no risks of falling prices were run, therefore, no matter what was grown. In addition, the farm office at Washington had taken upon itself the work of guiding and urging the crop output. It had, indeed, laid down the general rule in this matter, "that all should produce as formerly but more of it." Counsel of this sort, however, was a mere fraction of what the department did in the guidance of farm output. Agents from this department there were in every farm county of the land—often several of them—members of the great rural extension service who carried out its will. Plans of this office were also carried out to some extent by bonuses of tools, seed, labor, and other farm supplies that it had power to give. Farm output guidance having leading strings of this sort could readily do away with the kind of help which prices had usually given.

The handling of the profit margins was vested in the "enforcement" branch of the food board and proved to be a heavy job. A single case, as told of in the report of the war board, will show how these were applied in actual practice and will help to illustrate the methods of the plan.

Flour was to be controlled; i.e., the price kept down, through a maximum fair price for the bulk product at every

producing point in the United States. This required the sending out of 8,500 individual price schedules, one to every licensed mill (which meant every mill) in the country. With the sending out of these schedules there was no longer an opportunity for padded cost reports from the mills. Not only had each mill been given a schedule showing the price of bulk flour at its door, but every state food administrator and zone agent had a copy of the schedule to assist him in enforcing this fair price. Maximum prices were in effect, with the Government naming each mill's maximum charge.⁶

Great was the force of the license, when so much could be had with so little effort!

Retail prices, however, were not so easily kept in line as were those of the big dealers; and for these prices a new device was used. Boards made up of local residents, known as price-interpreting boards, were set up in every county. These boards applied the margins sent them from the central food office under local conditions to the local merchants. Some leeway was given them in the putting on of these margins so as to permit a degree of flexibility. The margin-made prices were then published weekly in the local papers. No legal power existed, of course, to compel dealers to follow these prices, but public opinion, thus drawn out, proved fairly effective. Trade relations, at any rate, with licensed wholesalers could be banned if necessary by simple notification of these latter. Ample "follow-up" data, which the food control gathered, shows plainly the huge success which the whole effort of using price margins attained.

DIRECT CONTROL OF PRICES

By this term is meant the setting of prices on foods when they enter trade, instead of when they leave it, as in

⁶ Garrett's *Government Control over Prices*, p. 70.

the case of margin prices. Price-setting of this sort is known as "basic" price-fixing, and was applied to certain staple foods such as wheat, sugar, meat and rice. Wheat, indeed, was required by law to have a "basic" price set. Price control, when gained in this way, is of course much more complete than when obtained by the profit-margins plan and its methods are very different.

The vital place taken by wheat, meats, and sugar, in a people's dietary, of itself made these foods of prime concern to the food board. In addition to this natural rank, however, these foods were vastly stressed during the War through being our chief food gifts to our armies and allies in Europe. Indeed, it is not too much to say that under the stress of the submarine warfare, which every one recalls, the likening of our armies and allies to entombed miners being fed through a tube was no figure of speech. Certain it is that none but the most savory foods, and those having the least bulk, should be used for this purpose. The wheats, meats, fats, and sugars were these foods.

Price-setting through control of the product, as is the method with "basic" prices, may be done in several ways. An adequate grip on either the supply of an article or the demand for it will permit a price of this sort. Supply control, indeed, is often secured through law, as in the case of copyrights and patent rights. Again, it may be had through the purchase of the sources of raw materials, as in the case of hard-coal mines, oil wells, the public utility franchises, etc. The so-called "corners" of a stock are perhaps the simplest examples which may be found of this sort of control. On the other hand, prices may be set also by agreements among buyers as to how much they will pay. Employers' associations do this in dealing with

labor unions. City milk dealers do the same thing when they buy their milk supply from country dairymen through a single agent who speaks for all of them. The food board was denied direct power of any sort over farms and the farmers, so the control of food sources was beyond its grasp. Control over food demand alone was left it, therefore, and on this grip it relied for the "basic" price on wheat.

The maintenance of wheat prices at a certain figure the country over, once this had been set, made a task of no small size for the food board.⁷ The chief device for doing this was the agency known as the United States Food Administration Grain Corporation. This company had its charter from the State of Delaware, and the Federal Government was the sole owner of its capital stock. These shares at first equaled the sum of \$50,000,000, but later on this amount was made much larger. The purpose of the company, as told in its charter, was to buy and sell wheat, and it became at once an active buyer in all the big wheat markets of the country. In some of them at times, as in the case of the Chicago board of trade, it was the only buyer. It sold chiefly to the millers and elevator men of the country, to the United States for war purposes, and to the allied European nations.

The stated policy of the food board was of the most sweeping sort. It stood ready through the company named above to buy entire wheat crops if this should prove necessary, in order to keep up the "basic" price. But, of course, it had no rivals, since no private buyer could

⁷ The basic price of wheat had been set by a committee of representative men appointed by President Wilson at \$2.20 per bushel. An act of Congress made \$2.00 the minimum price. The Chicago wheat market and a certain grade of wheat were to act as bench marks from which the price could be computed in other places.

compete with a company like this. Furthermore, there was no motive for competing. A lawful "margin" added to this basic price made the highest price at which a dealer was allowed to sell wheat or its products at any time. He, therefore, would gain nothing by paying more than the basic price for his supplies. On the other hand, wheat could not be bought for less than the basic price by the private dealer. This was true, because the big grain company would pay this much for the entire supply and no grower need sell for less. The basic price stood, therefore, as the price which agreed with every one's desire to employ. The proof of the board's success in keeping this price in line is easily shown. It is found in the fact that local market reports show a uniform price throughout the land for the year and a half of the board's control.

Sugar-price control was kept up by means similar to those used for wheat, but with much less difficulty. Here the International Sugar Committee, made up of members from the "big four" of the allies, was formed. The object of this committee was to buy the entire Cuban crop from year to year and to divide it among the countries that made up the pool. The share which came to us was larger by far than the receipts from all other sources put together. It made, in brief, a makeweight by which the home-growers of sugar were kept in line as to prices. Here, too, as in the case of wheat, the food board's basic price made the sum to which the margins of the dealers were added. The set price, therefore, was backed by the two strong forces of a buyer's monopoly and of a profit-margin price and was, as a result, easily kept up.

No especial task came up in setting the prices on meats. Most of this food by far was bought on public account. Meats were held to a level price, therefore, by the power

of the food control board as the chief buyer of such food. Dealers were whipped into line as to their selling prices, also, by the use of the license. All meat prices felt the effects of the food control, but no formal effort was made to fix them exactly as was the case with wheat and sugar.

Price-setting by law has had many adverse criticisms. The checking of production is possibly the most common evil which, it is claimed, results from this plan. Certain it is, however, that there was no falling off in output of the products whose prices during the War were set by the food board. Crop areas and herds grew by leaps and bounds during this period, although many students believe that wheat prices were set at too low a sum. Another complaint urges that no motive is left for the flow of products from places of naturally low price-levels to those of higher when uniform prices are made to prevail. The food board faced this difficulty squarely and laid down the rule that places near the sources of food supply must be supplied first. This grew later into a zoning system. Later, indeed, the board laid down the actual amounts of some foods which could be sent from place to place. The sugar ration is a case of this sort in hand. Price-setting by law has indeed many evils—some of them undreamed-of before the event. The policy, however, during the war enabled savings to be secured by the consumer which would have otherwise been denied him. These were mainly through the cutting out of speculation, of hoardings, and of excess profits, and this forms the justification of the policy.

FOOD CONTROL ADMINISTRATION

The system by which these many results were obtained was, of course, a triumph of organization; otherwise the

results would not have followed. This remains yet to be spoken of, although many of its aspects have already been given in treating of the food-board efforts. The working rule of the whole system was often stated, "as one of centralized responsibility and decentralized administration." In other words, the plans and policies of food work were made at the central board office, but the application of these was left with the local agents. This central board which exercised these functions is imaged in the staff that Mr. Hoover called about him—a staff of men in the main made up of trade specialists.

The local agents, on the other hand, who filled in the outlines of this great system, had in each of the commonwealths a state manager as their leader. The oversight of the food control within his state rested upon this official and he was usually a man of prominence. Beneath this manager was one of similar nature for each county of the state, and below these were often village or town food agents. Often, too, there were special committees, where unique food matters were to be taken up. In this way the whole country was fully covered with food workers, each one duly related to the others. Rulings from the central board were given effect quickly by these means from one border of the nation to the other.

No power was lacking to the central board for the execution of its plans, rules, and decisions. The public in general was subject to severe penalties for the abuse of foods. Food dealers, besides, would lose their licenses if any rulings of the food board were not adhered to, and without these they could transact no business. First and last, some 8,000 penalties of this sort were inflicted, though many more dealers were made to pay fines or to give to the Red Cross in lieu of having their licenses

taken away. Dealers, too, in the staple food trades were liable to rivalry from the government, since the food law gave this agency the power to "purchase, store, and sell at reasonable prices, wheat, flour, meal, beans, and potatoes."⁸

It was not an idle use of words, therefore, on the part of one of the lawmakers to declare that "this giving of power was the most complete of any ever before given in our history."

FOOD CONTROL AS A POLICY

The question is often raised as to whether public food distribution is feasible as a regular policy. More briefly, the issue is raised as to whether food control can be carried on with the same good results in peace times as in war. Some light upon this topic should now be open to our use in reaching an answer, and the nature of this answer will now be discussed. Those who champion a negative answer to the query given above claim at least three proofs in support of their position. They urge, in short, when claiming that food control is impossible except in war time that the stimulus of fighting to "win a great cause," the magic of a big patriotic appeal, and the amount of expert free help given, made the recent food control success an assured thing. These were forces of great power, indeed, as was shown in the early part of this chapter, and too much can hardly be claimed in their favor.

On the other hand, the food control was burdened with

⁸ The usual war power of requisition was also much extended by this food law. Says Section 12: "The government may take over and operate any factory, packing house, pipe line, mine or any other plant, so far as it is necessary to secure an adequate supply of necessities for the army and navy, or for other public use."

heavy cares as the result of war itself, which served to offset these benefits. Two at least of these may be stated briefly here: (1) the lack of food for home use, owing to poor crops; (2) the heavy task of feeding our army and allies in Europe. The shortage of crops, during our two years of war, was but little less than tragic. Great as the furor was for a larger food output in the first of these years, harvest time found a marked failure in crops. The wheat yield was far below the average for a 10-year period, while the corn crop was bad in quality, due to the cold, wet weather of the entire year.

Crop shortages of this sort must have caused some distress even during normal times. But with our overseas food duties to the army and allies, in addition to a shortage, there could be but one result. There must be a general self-denial on our part of no doubtful sort. The wheatless and meatless days which all observed gave the concrete form which this self-denial took.

The self-denial policy, however, was not adequate. Before the end of the first year the food shortage was the worry of the allied world. It had grown worse, and the food board was at last brought to the use of force in making further savings of food. This was the period of the substitutes. Food dealers must force these upon customers at the risk of losing their licenses. The card plan of buying sugar was now applied to the big users of this article, while the sugar-ticket plan was put upon private families. No one may doubt that the work of the food board was vastly added to by this extra labor of rationing two main foods of the nation—wheat and sugar.

The feeding of the army and allies in Europe, under the menace of the submarine, required also enormous exertions. This effort has already been spoken of as resembling the

feeding of entombed miners through a tube. It added greatly to the food board's task. The motto of the food chief that "food would win the War," or his later maxim, "that every one, each day, should devote himself to having no thought nor act which did not tend to win the War," shows the stress of this phase upon the food board. Mr. Hoover himself spent a large share of his time in the capitals of the allies or in the camps of the armies. The work of the food board surely would have been vastly less had it not been burdened with these additional war cares.

Food distribution by government is, then, no longer a mere venture in Utopia. The thing has been done. The nations of Europe had a more complete scheme of food sharing than was tried out here. Their experience also was much longer, and in no instance was there lack of success. These war-time tests of the plan will form the basis of experience for future efforts in bettering marketing conditions. The market reformers at least will not argue wholly from theory henceforth when they urge the cutting out of the private middleman. The war-time achievement will give a basis of fact upon which they may stand and the success of which will add force to their efforts.

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